

AMERICAN VETERINARY REVIEW

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CONTENTS.

	PAGE		PAGE
Editorial—		Civil Service Examination—	
European Chronicles.....	647	Veterinarian.....	747
The Veterinarian's Mecca.....	659	Legislation in Canada.....	748
A Plan for Filing Bulletins.....	660	Society Meetings—	
John's Disease in Cattle.....	661	International Congress on Tuberculosis.....	750
Original Articles—		Inter-state Association of Live Stock San- itary Boards.....	756
The Systemic Handling of Wound Infec- tion.....	662	Association of Veterinary Faculties and Examining Boards of North America... ..	757
The Veterinarian and Meat Inspection.....	681	Maine Veterinary Medical Association... ..	758
Filing System for Bulletins, Miscellaneous Pamphlets, and Clippings.....	692	South Dakota State Veterinary Medical Association.....	759
Country Slaughter House Conditions in Iowa.....	701	News and Items.....	760
John's Disease in Cattle.....	709	Veterinary Medical Association Meetings.....	763
Reports of Cases—		Publishers' Department.....	764
Some Interesting Cases.....	717	Index.—Title Page.....	i
Cases Met with in Practice.....	720	List of Illustrations.....	iii
A Diagnosis Requested.....	723	List of Authors.....	v
Mange and its Treatment.....	725	Table of Contents.....	vii
Abstracts from Exchanges—			
English Review.....	730		
French Review.....	733		
Italian Review.....	737		
German Review.....	739		

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AMERICAN VETERINARY REVIEW.

SEPTEMBER, 1908.

EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, July 15, 1908.

THE DIAGNOSIS AND TREATMENT OF TORSION OF THE LARGE COLON IN THE HORSE.—The *diagnosis and treatment of torsion of the large colon in the horse* is the title of an essay from Prof. Forssell, published in the "Zeitschrift fur Eiermedizin." A review of it has been made by Prof. Leclainche in the "Revue Generale."

Among the many accidents described under the name of colics, twisting of the colon has been the subject of many special studies. In 1890 Jelkmann said that this torsion can be recognized by rectal examination, and that its reduction is an easy matter. In "Moller and Frick," it is stated that the spiral disposition of the transversal fissures of the colon is a sure sign of the torsion existing. When it occurs to the right, the spires are directed from forward backward and from left to right. In the torsion to the left, they have an opposite direction. This rule, however, is not absolute in all cases. Indeed, it is not sufficient to speak of torsion. But it must be remembered that the several portions of the colon can undergo many displacements. The twisting may extend to the four portions, exist near the diaphragm, may reach the two superposed portions of the left side or again the pelvic curvature. Besides all this, the degree of the torsion may vary. It may be one-quarter, one-half, three-quarters of a turn or even be more, a whole turn, even one and

a quarter or again one and a half. If the four portions are twisted, generally the turn is complete. Naturally, according to these different cases, the characters of the spiral formed will differ.

At any rate, one must always bear well in mind the topographical anatomy of the abdominal cavity, otherwise the rectal exploration will find it very difficult to arrive at the correct diagnosis of the accident. Other signs exhibited by the patient may be of some help, but they are not characteristic as those that can be obtained by the rectal examination.

* * *

Remembering the peculiar disposition of the four portions of the organ, the superposed arrangements that they assume, their relations with the abdominal walls and the diaphragm, their curvatures, their short mesentery and the contractions and saciform dilatations that they present, one can readily recognize, in the normal condition, every peculiarity, especially if the intestines are almost completely empty. But if it is distended by food or gases, this is more difficult. And such is the condition with the torsion of the colon, hence the recognition of parts more difficult. Indeed, let us suppose a case of twist of the left compartment of the colon. By rectal examination, the lower left portion will be recognized by the saciform dilatations, while the upper left portion will, on the contrary, be felt rounded, smooth and of a smaller diameter. Then the cœcum may induce one in error, although the directions of the folds of that organ will be sufficient to recognize it. The rectal examination, however, can only be applied for the two portions of the left side, as those of the right cannot be generally felt through the rectum.

According to Forssell, the march of the torsion of the colon is in general as follows: The manifestations of pain, while working or in the stable, are slight. The pulse is often almost normal during the first hours, also the respiration. Peristaltism is reduced or entirely arrested. After a few hours the size of the abdomen is noticeably enlarged by the accumulation of gases.

The portions of the right side of the organ and the cæcum become also dilated with gases. The pulse then becomes accelerated, 80, 90 after 10 or 12 hours. In others, after 20 hours, it is only 60 or 70. Great general weakness becomes manifest and yet no great pain. Some horses lay down but once and are still standing up a few hours before death, which, if the reduction is not made, will occur after 30 or 40 hours in average.

* * *

The treatment consists in the reduction of the torsion. It is the rolling over of the patient in the same way as is done for torsion of the uterus. The principle is that *the horse must be rolled in the direction of the torsion*.

Indeed, the colon is twisted upon its axis in the sense of the longitudinal direction of the body; if the intestines being fixed, the body is rolled in the same sense, all will return to its place. If the colon is twisted to the right, roll to the right. If to the left, roll to the left.

To fix the intestine, may present some difficulty, but one may secure it or at least help it by rolling the patient rapidly, while at the same time, puncture of the intestine has already relieved the friction against the walls of the abdomen by the escape of the gases. And besides that, the hand introduced into the rectum will steady the pelvic curvature and, so to speak, immobilize it. The results are almost always satisfactory. Out of 18 cases treated, Forssell has lost but one. This animal had been rolled over several times and it had been necessary to puncture him several times in the colon to allow the escape of the gases. Contents of the intestines had dropped into the peritoneal cavity and given rise to fatal peritonitis.

Once the reduction obtained, it is announced by an abundant evacuation of gases per rectum. Some times this does not take place immediately. But yet the left flank shows the result by its dropping back to its size and its bloating subsiding. If the torsion had been recent, and the reduction realized, the horse has recovered at once. But if the trouble has existed for some fifteen

or twenty hours already, the animal will remain depressed for some little time. In all cases the after treatment consists in a careful diet carried out for several days.

* * *

THE VALUE AND USE OF MORPHIA IN CANINE SURGERY.—The value and use of morphia in canine surgery has been the subject of a long paper which was read before one of the Societies of England by Prof. Fred. Hobday, F. R. C. V. S., and has found its way in several of our English contemporaries. Treated as all the subjects to which the Professor gives his attention, the value and use of morphia deserves to be noticed by all veterinarians. A glance at the concise extract which has appeared in the "Veterinary Journal" will give us a fair idea of the manner in which the question is treated.

"Morphia has been recognized for many years past as an agent which is useful to minimize pain in the human subject as well as in animal patients; but in the case of the later it is universally conceded by all veterinary therapeutists, who have studied its action, that its effects on the different species of veterinary patients differ very considerably."

"In surgical works, the narcosis that it rapidly produces can be made use of both to assist in keeping the patient still and thus aiding in delicate manipulations, and in reducing pain. By its aid alone, minor operations can be performed, and if its action is assisted by a local anesthetic, even quite severe operations can be completed. To handle a vicious dog and render him tractable and harmless; for the setting of fractures in restless patients; in cases involving laparotomy; and combined with chloroform, the benefit of the use of morphia cannot be overlooked by the careful surgeon.

"The average dose necessary to produce the desired effect is about one-sixteenth of a grain per pound of body weight, although this can be exceeded with perfect safety. In fact, the insusceptibility of dogs to large doses of morphia is perfectly extraordinary. So much so that it is quite impossible to state

with certainty what reasonable dose will be lethal. Hobday has given 15, 18 and 20 grains to dogs so as to kill them without accomplishing his end. A medicinal dose will in three minutes be followed by vomition and often with defecation, and this makes it a useful drug to administer in urgent cases of poisoning by strychnia. After four or five minutes the dog falls asleep. In rare cases he may show excitement, delirium with hurried respiration. In half an hour any simple injury can be safely attended to. For more severe procedures, three-quarters of an hour are necessary to have the state of narcosis at its height. Very large doses of the drug will cause refusal of food and a staggering gait for even 24 or 36 hours after. But with the average dose, the patient recovers sufficiently quick to walk home.

* * *

These considerations that I abbreviate considerably are accompanied with a long list giving the concise history of 90 cases, with breed and sex, age, approximate weight, nature of the operation, amount of morphia given, and remarks relating to each case. While the age of the patients has varied between six months and fourteen years, the list shows that according to the weight of the animal the dose of morphia has varied from one-half a grain to five grains. The principal operations performed were "For venereal tumours, Entropion, Prolapsus recti and vagina, Extraction of tooth, Ovariectomy, Castration, opening of abscesses, removal of sub-cutaneous cysts, removal of mammary glands, amputation of the tail, umbilical hernias, leg amputation, setting of fractures, pterygium, cataract, etc., etc. These operations being performed with the use of morphia alone or assisted as the case required with other local or general anesthetics.

In his conclusions, Prof. Hobday resumes the advantages of the use of morphia as follows:

- "1. Safety of the drug when used with reasonable care.
- "2. The patient is less nervous and much more tractable and easy to manipulate.
- "3. The operator needs less help and a local or general anesthetic can be employed with great facility.

"4. The patient does not struggle so much and is less likely to become hurt during the operation or the process of securing.

"5. The patient rests more tranquilly after the operation and remains quiet for a considerable time.

"Minor disadvantages: Vomition and defecation. Idiosyncrasies which may be accompanied with hurried respiration and delirium. Tendency to hemorrhage and possibly difficulty of removing until the prolonged narcosis has passed away."

We feel that our readers will derive good benefit by resorting to the method recommended by the Professor. Extensively in practice on the continent the results have proved satisfactory in both branches of medicine.

* * *

TENDINOUS AND PERIOSTIC REFLEXES IN HORSES.—Some time since Dr. Theodore Schmidt has called the attention to *tendinous and periostic reflexes in horses* and published a *contribution to the diagnosis of lameness*. The "Revue Generale" reviews it as follows:

Erb and Westphal have described in 1875 under the name of tendinous and periostic reflexes, sudden muscular contractions produced by any mechanical irritation; a sudden shock of the tendons or of the periosteum. While the study of reflexes has assumed great importance in the semiology of nervous diseases of man, it has scarcely been considered in veterinary medicine and the subject has remained unexplored with the exception of the investigations made by Dexler. In man, the principal reflexes are those of the patella and of the Jendo-Achillis, constituting what is known as the "Foot Phenomena." Some cutaneous reflexes (cremaster, abdominal wall) give also valuable indications.

Tendinous and periostic reflexes have a real interest to the point of view of the diagnosis of lameness. And yet surgical works scarcely mention them. Speaking of the exploration of the foot, with the hammer or the nippers, Fröhner considers the muscular contraction resulting from their application as a mani-

festation of the pain resented. Moller says that in sore condition of the foot, there is exaggeration of a sudden (reflex) motion of contraction of the leg.

But this muscular contraction resulting from the percussion or the exploration by pressure of the nippers takes place also without the existence of painful lesion and then it constitutes a true reflex which ought to be designated as *reflex of the foot*.

On the dorsal face of the cannon, on a level with the middle third, it is not rare to obtain, by palpation, a reflexed contraction, differing entirely from the painful sensation felt by the periosteum at that point. This ought to be called the *reflex of the cannon*.

Another reflex, the *metacarpal*, is also obtained on the median fore face of the metacarpus in the neighborhood of the carpal joint or between the metacarpus and the median face of the knee, and when there is no inflammatory condition of the periosteum or of the pre-articular region.

Tendinous reflexes are observed specially on the level with the flexors, on the tendon of the flexor of the metacarpus or on the suspensory ligament.

Applying the plessimetric hammer upon the middle part of the superior sesamoid ligament, mild reflexes are obtained. They can be called *reflexes of the flexors*, *reflex of the suspensory*.

* * *

In all cases, these are long reflex effects, corresponding to multiple segments of the spinal cord, with the co-operation of collateral reflexes and these reflex contractions differ from the various characters of the voluntary motions resulting from a pain.

" 1. Reflexes will always be looked for, on all corresponding extremities together and will be found upon two anterior or two posterior extremities or upon the four at once.

" 2. Reflex contractions are obtained with percussion of the foot or by a sudden pressure on the elective spot.

" 3. Involuntary reflex contractions are sudden, the animal remaining entirely at rest. Contractions due to pains, voluntary,

are repeated; several groups of muscles are involved; they increase with the severity of the pressures and finally various insolite movements are manifested.

"4. In doubtful cases, other symptoms will be looked for, especially local manifestations (heat, deformity) likely to explain or bring suspicion of a painful condition.

"5. The reality of reflexes can be learned by the examination of a number of animals sound and free from lameness."

There is no doubt that the subject will present a wide field of interest, and if it has not the importance that it offers in human medicine, its study and better application by veterinarians may prove of great value in the diagnosis of lameness, which, notwithstanding the great progress that has been made in late years, has yet left many cases obscure and doubtful.

* * *

ANATOMICAL OBSERVATIONS.—For anatomists, anomalies are always interesting and for the surgeons the knowledge of their possible presence is of utmost importance. Of course, some of these differential arrangements in tissues or in organs constitute merely curiosities and their presence is comparatively secondary in its importance. And yet the simple curious fact from natural condition is always deserving attention, this, of course, varying according to the organ which is different from the ordinary.

Prof. Luigi Varaldi, of the Anatomical Institute of the Royal Veterinary School of Milan, has recently recorded in the "*Clinica Veterinaria*" a few anatomical observations which deserve our concise notice.

He found them first in several muscles. 1. It was the muscle *Stylo glossus*, which existed on both sides of the head of a horse, being prepared for anatomical demonstration. The muscle was doubled at its origin. The supplementary portion, entirely muscular had the form of a cone and was attached anteriorly on the lateral face of the thyroid branch of the hyoid bone and passing

forward joined the fibres of the true stylo-glossus muscle. The same anomaly existed on both sides, but the supplementary branch of the right side was smaller and more delicate.

2. On the same head, the glosso-staphileus presented also a peculiar condition, namely, in having a delicate muscle which, from the soft palate, extended to the superior maxillary bone, a little back of the last molar. The tendon situated under the mucous membrane of the anterior pillar of the soft palate was continued by the muscular fibres and after bordering the lobules of the staphyline glands reached the lateral face of the tongue and running forward as far as the symphysis of the inferior maxillary, ended with the mylo-hyodeus.

3. The digastricus was found in one head, perfectly isolated into two special portions, the digastricus and the stylo-maxillaris. This one presenting the peculiar condition that the posterior part did not pass through the fibrous ring which normally is found and divides the muscle into two bodies.

4. A supplementary fasciculus was found in preparing the right ocular region of a horse. This consisted in a small muscle, which from the posterior border of the reflexed portion of the great oblique muscle, a short distance from the trochlear pulley over which this passes, run backward describing a curve with concavity turned upward and terminated upon the superior border of the superior rectus muscle. This little adjunct received a special nervous branch from the fourth pair of cranial nerves.

Prof. Varaldi concludes by the record of a case where he found an accessory branch to the left renal artery of a horse. While there are a number of cases on record where the kidneys have been found receiving blood from other branches besides the true renal arteries, the one observed by the Italian anatomist has never been observed. Indeed, in his case, the left kidney has its normal artery with its normal peculiarities, but there is also a large artery which, leaving the posterior aorta, near its quadrifurcation, a little in front of the origin of the external iliac, runs forward so as to reach the left kidney where it enters at its posterior border after dividing into two branches.

TUBERCULOSIS OF THE RETROPHARYNGEAL GLANDS.—As frequently even when one is making an examination of the head in looking for tuberculous lesions, diseased condition of the retropharyngeal glands is overlooked, Mr. L. Spartz, Director of the Abattoir of the City of Luxemburg, has in "The Hygiene de la Viande et du Lait" published a short reminder, which veterinarians will consult with advantage.

"All bovines that cough are in the eyes of the public to be regarded as suspicious of tuberculosis, and if tuberculosis of the superior respiratory tracts is rarely mentioned in veterinary medicine, it is probably because the inspection of the intermaxillary space and of the retropharyngeals has not been made in a sufficiently minutious manner. If these retropharyngeal glands are regularly examined, they are often found diseased and often also more frequently than the others. It is a local tuberculosis, which may also be found accompanying pulmonary tuberculosis; but has also been observed in animals having no tubercular lesions in any other organs or part of their body. Yet, it is a lesion quite rare in animals affected with generalized tuberculosis.

Out of 28 animals which presented lesions of the retropharyngeal glands, seven presented no lesions of tuberculosis in any other part of their body. In the 21 others there were lesions of the lungs, of the liver, of the intestines. One had lesions of the first cervical vertebræ.

The following are the clinical symptoms. In forms, not well marked, if tuberculization is not indicated outside by deformity of one or both sides of the parotids, the affection is indicated only by a strong cough, frequent but not by spells. This cough has not the classical characters of the animal having extensive tuberculosis. The animals remain fat, their eyes are bright, the chest and loins loaded with fat. The tuberculous glands act upon the mucous of the pharynx as a foreign body. The animal coughs whether in a warm stable or in cool air. And this manifestation is not promoted by the ingestion of cold drinks, blow on the thorax, or accelerated exercise. It is the only clinical

symptom. In some cases, however, if the tumor is large and as big as an egg or the fist it is noticed externally by the deformity of the lower part of the parotid region.

This tumor is attached by its deep face, is not painful, is uniformly hard and may be taken for actinomycosis. The absence of fistulous tracts and the character of the pus will establish the diagnosis. Normally the glands form two little bodies more or less round, two or three centimeters long, one or two thick. If tuberculous they rapidly enlarge and constantly irritate the nervous terminations, hence the cough.

When the affection is primitive, Mr. Spartz, in his practice excises the diseased gland without touching the surrounding tissues.

* * *

EUROPEAN SUNDRY ITEMS.—I will continue the Review of European Sundry Items inaugurated in my last chronicle.

REBELLION AT THE VETERINARY SCHOOL OF VIENNA.—I have already alluded to it. Here are a few more details. For some time, sustained by graduates already practicing, the veterinary students of Vienna have been claiming for reforms in the organization of the school, which it is known is strictly military. The Government and the Parliament ignoring the demands, a large manifestation was organized. About 200 students, after a great row during the lectures, which had to be stopped, presented their requests to the Director of the school, where they asked for the transfer of the school from the War to the Public Instruction Secretary; for no admission of farriers to the veterinary school, and finally demanding an apology to be made to the students for an insult they had received from one of the sub-officers on duty. "Down with the military regime. No more Secretary of War" was their cry. The students were dispersed by militaries and the school closed.

A week later, a great meeting took place, six deputies were present, also high functionaries, the members of the faculty and many practitioners. One of the students read the desiderata,

asking also for the degree of Doctor, the abolition of the lectures, which were common for the students and the farriers, the creation of a bovine clinic with outside calls, of a chair of hygiene and the modernization of the mode of examination. Many speeches were delivered and the meeting broke out at the cries of "Down with the Secretary of War." A few days later a delegation was received by the proper officers and were assured that the Government would examine their claims at once.

* * *

A QUEER PROTEST.—At the school of agriculture of Portici, the students and the professors have sent a strong protest against veterinarians being allowed to follow the lectures on Zootechny. This protest will, however, have no effect, as veterinarians have a perfect right to follow these lectures.

* * *

A LAW SUIT AGAINST PROF. LOEFFLER.—An outbreak of foot and mouth disease that had occurred on some farm had its origin traced to the Institute where the distinguished Professor carries on his experiments. The Secretary of Agriculture had the case dismissed; but by decision of the Superior Court of Justice, it seems the case has to follow its course. The issue of the case is watched with great interest by German veterinarians. It would certainly be a very sad thing to see the learned Professor held responsible for an act resulting from his researches and upon which he had no control.

* * *

A Belgium paper has announced the unexpected news of the *resignation of Prof. DeGive*, Director of the Veterinary School of Cureghem. This would be a great blow to the school. It is rumored that the cause is some difficulties existing in the administration of the Secretary of Agriculture upon which the school depends.

* * *

Pamphlets received the last month and this have been plenty and their contents are interesting and instructive.

In the first line are two experiments by the Director of the Zootechnic Institute of the Agriculture School of Milan, Dr. Antonio Pirocchi, on the *influence of milk on the health of calves and again as food*.

Then came from the Bureau of Animal Industry, first, Bulletin 104, a report by Clarence B. Lane, on *Medical Milk Commissions and the production of certified milk in the United States*. Second, Circular 127, on *Tubercle Bacilli in butter* by E. C. Schroeder, M. D. V., and W. E. Cotton, and, third, Circular 129 on *Rabies and its increasing prevalence*, by George H. Hart, V. M. D. A concise little review of that everinteresting subject which ends with strong conclusions relating to the eradication of the disease which can be resumed in three words, "muzzle the dogs." An advice whose successful results are presented in a few words and form a strong argument in favor of the method.

As a complement to the above, I have the pamphlet of Langdon Frothingham, M. D. V., on *Impression preparations and the Van Gieson Stain for Negri bodies*.

Finally from the Department of Agriculture of Victoria: A pamphlet on *Veterinary Inspection of Stallions* for the Certificate of Soundness and Approval, illustrated with 37 figures and accompanied with the report of Mr. Swinburne upon such examination.

A. L.

THE VETERINARIAN'S MECCA.

We published last month the program and everything of especial interest concerning our great International Veterinary Convention which convenes on the 8th, 9th, 10th and 11th days of the present month at Philadelphia, under the auspices of the University of Pennsylvania. In this issue of the REVIEW we give space to the program of the Association of Veterinary Faculties and Examining Boards of North America, an important organization in affiliation with the A. V. M. A., which will meet in

Philadelphia the day previous to the opening of the convention. The meeting this year promises to be of extraordinary interest to the profession on account of the Government investigation of veterinary colleges and the educational standard that will have to be observed hereafter by the colleges in order for their graduates to be eligible to take the civil service examination for employment in the Bureau of Animal Industry.

We are also publishing in this issue the program of the International Congress on Tuberculosis, which takes place at Washington, D. C., September 21 to October 12, as well as that of the Association of Interstate Live Stock Sanitary Boards, which holds its meeting at Washington the week intervening between the adjournment of the A. V. M. A. at Philadelphia and the opening of the International Congress on Tuberculosis in Washington.

The section meeting of the Congress will take place the week beginning September 28th, and the exhibition will continue for the entire three weeks, from September 21 to October 12. There is to be a joint session of Section I, "Pathology and Bacteriology," and Section VII., "Tuberculosis in Animals and Its Relations to Man," on Wednesday afternoon, September 30. The list of papers and authors is included in the program published elsewhere in this issue of the REVIEW.

It is indeed a remarkable circumstance for so many important bodies to meet so convenient to each other both as to time and place.

Surely never before was there such a grand opportunity for the veterinarian, and it is hard to conceive of any member of the profession being so foolish as to allow this opportunity of his life go by without availing himself of its privileges.

A PLAN FOR FILING BULLETINS.

In this issue of the REVIEW our talented collaborator, Dr. M. H. Reynolds, of the University of Minnesota, offers to the profession a very simple and satisfactory decimal system key for

filing bulletins, miscellaneous pamphlets and clippings that seems to possess advantages over other systems now in use in many libraries and offices.

Dr. Reynolds had several copies of this key made with a view to distributing them to his personal friends whom he thought might be having the same trouble with bulletins and reprints which he had been having, thinking possibly to save them the labor which he had undergone in devising a satisfactory way of filing such publications. He thought of so many men who probably needed something of the kind that he decided to submit it to the REVIEW. We take pleasure in publishing it for the benefit of the profession. By Dr. Reynolds' method a bulletin or report may be very promptly filed, and as promptly found.

JOHNE'S DISEASE IN CATTLE.

The occurrence in America of a chronic bacterial dysentery of cattle identical with a disease found by Johne and Frothingham at Dresden in 1895 and studied by Bang, McFadyean, Liautard and others, has been recognized in remote parts of this country. Pearson, in the February REVIEW, reports the diagnosis of the disease in Pennsylvania.

It has also been recognized in Minnesota and Wisconsin. Dr. W. L. Beebe, Bacteriologist for the Minnesota State Live Stock Sanitary Board, contributes a valuable paper (see original articles, page 692) on the study of the disease in the northwest which will be read with much interest.

IN THE MISSION SUNDAY SCHOOL.—Teacher: And what do you suppose all the animals did during these forty days in the ark? "Smarty" Williams: They just loafed around and scratched themselves. "Sandy" Toole (disdainfully): Chuck it, Smarty! What'd they scratch for, when there was only two fleas?—(*The Bohemian.*)

ORIGINAL ARTICLES.

THE SYSTEMIC HANDLING OF WOUND INFECTION.

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When a wound becomes infected the practitioner attempts to overcome it so far as possible by local measures, and in so doing goes about his task with a definite plan to combat the disease.

It is doubtful, however, whether all practitioners have an equally clear conception of the Systemic or internal handling of wound infection when its effects have passed or threaten to pass beyond the confines of the wound area to involve the entire system of the patient. Each practitioner presumably recognizes the influence of the system upon the course of the local lesion. It is constantly observed in practice that one patient having a severe and extensive wound progresses favorably and makes a prompt recovery, while another of the same species and with a less extensive and complex wound does badly. Sometimes we find the difference in the character of the infection, but often the bacteriologist cannot tell us by examining the organisms from a benign and malignant wound to which of the two a given culture belongs, and we habitually refer this clinical difference to individual resistance due to some peculiarity of the system. We thus recognize the fundamental proposition that in wound infection the disease may be essentially confined in its ravages to the wound area or may involve more or less seriously the entire animal organism.

These variations stand out so conspicuously in every-day practice that they constitute an important element of uncertainty in prognosis. We have learned clinically to look askance upon wounds in weak, debilitated animals, while the same apparent injuries in a vigorous individual create less alarm.

Our view of these variations in the intensity of wound infection is modified by the rule that the results are largely dependent upon the quality and quantity of the infecting agent, but this does not lessen our belief, based upon clinical experience, as well as the teaching of experimental medicine, that the entire animal organism is influenced by and influences wound infection. Bacteriology teaches us that in wound infection, systemic disturbances may result either from the entrance of bacterial products into the blood, toxæmia, or of the toxins and bacteria together, septicæmia.

After the infecting organisms or their products have invaded the system any local application or handling within our power does not affect their influence upon the animal body, though their presence within the general circulation reacts upon the wound itself and tends constantly to increase the virulence in the wound area. The local and systemic infections are complementary, each contributing to the intensity of the other.

After a time the infection within the wound area may be overcome by the tissues, destroyed, and the wound permitted to heal, or ulceration, fistula or gangrene may result. Similarly depending somewhat upon the character of the wound infection, the systemic disturbances may cease through the casting out of the infecting agent or its products or its destruction within the body, the patient's life may be brought to an end in virulent cases or in some forms of infection like botryomycosis, glanders or bursattee it may assume a chronic state and continue for months or years.

Few phases of wound infection are of greater basic importance than its systemic handling, and yet, in a large measure, veterinary practitioners fail to grasp its full significance and frequently neglect to avail themselves of important means at their command for accelerating and increasing the probability of recovery. It would be extremely unfortunate if, in considering the systemic handling, we should in the least neglect or relax in the local measures which we all recognize as being of such great

fundamental importance, but we hold that each phase should command our earnest attention. When the veterinarian undertakes the local handling of an infected wound, he proceeds somewhat according to the following plan:

1. He attempts to mechanically remove the infecting organisms by free openings following by ample irrigation, excision or curetting away of fatally or dangerously infected tissues.

2. The destruction of the infecting organisms remaining in the wound by the application of chemical, thermal or other killing agents-disinfectants.

3. The prevention of fresh bacterial invasions through wound occlusion.

We would outline an analogous scheme for the systemic handling of wound infection so soon as the disease has surmounted or threatens to overcome the local barriers provided by the tissues and is menacing the well being of the organism as a whole. As in the local, so in the systemic plan, we may well give first place, chronologically at least, to the physiologic expulsion of the offending agents, the bacteria and toxines, from the body. We are not aware that we can literally accomplish the former in wound infections; possibly not, though we know that in some diseases the living bacteria are expelled in the urine. Accurate data are also wanting regarding the excretion from the body, in their original form, of the various toxines arising in wound infection.

Clinically, however, we have ample evidence that those remedies which stimulate the excretory organs tend constantly to alleviate the systemic effects of the infection. When wound infection escapes the local barriers, the resultant systemic disturbances express themselves ordinarily by fever and abatement of the excretions, decreased volume of urine of abnormal composition, decreased expulsion of dry feces diminished perspiration; and it is a common clinical experience that the restoration of any or all of these excretory processes to the normal or hyper-normal tends to reduce the fever, and, in harmony with the

amelioration of the systemic disturbances, the local conditions improve. Consequently, from the earliest dawn of surgical practice, resort has been made to those means which tend to stimulate these excretions in order to combat fever without specifying its cause.

In a measure this phase of systemic handling of wound infection receives attention through the diet, though too often, perhaps, without a due sense of its importance, and hence with imperfect results. Generally the veterinarian, in handling wound infection, suggests a laxative diet, which constantly tends to accelerate the three excretions named. Possibly the average veterinarian prescribes this diet because it is fashion, or because he believes such foods more readily digestible or for other reasons more or less vague. It is true that such, as a rule, are simpler and easier of digestion and, being so, serve as an aid to the system in overcoming wound infection, whereas a food difficult of digestion undergoes bacterial decomposition in the digestive tract, elaborates poisons where nutrition is needed and serves to intensify the systemic disturbance due to the wound infection instead of relieving it.

The veterinarian should not only advise, but insist upon a proper diet for a horse suffering from a severe wound, be it surgical or accidental. The natural laxative foods for the horse consist of grass, vegetables, roots and fruits. In summer, when available, fresh grass constitutes the best food in, the majority of cases for horses invalidated by wounds and in winter the place of this is best filled by carrots or turnips or vegetables like cabbage or less effectively by potatoes or apples.

These foods, as well as properly prepared bran mashes, tend constantly to arouse the functions of the skin, kidneys and bowels to greater activity and in many cases of very severe wounds these precautions alone, so far as systemic handling is concerned, suffice to keep the animal organism in normal order and prevent an accumulation of toxic products within the system sufficient to induce fever.

In other cases we need through artificial stimuli to arouse the dormant or overwhelmed excretory organs to unusual vigor in order to avert threatened disaster. In this manner such stimulants as alcohol, camphor and coffee, so highly recommended by Fröhner and others, possibly exert their chief influence; while others believe they act as antiseptics.

The greatest exit for waste solids and liquids from the body is through the alimentary canal and hence it has long been the custom, in some classes of wound infection, to administer purgatives. We witness this familiarly enough in the alætic purge usually given in lymphangitis in the horse, and perhaps even more commonly in such infections as mammitis in dairy cows, a disease essentially parallel to wound infection, of local origin and referable to the ordinary bacteria responsible for wound infection.

Purgation has, however, been difficult, tedious, uncertain, and sometimes unsafe in the horse, and hence has not been so freely applied as in other animals and in man. We regard this difficulty as having been well overcome by the addition to our materia medica of a number of powerful vegetable alkaloids capable of inducing purgation promptly, certainly and safely.

With such drugs as eserine, pilocarpine and arecoline the veterinarian has at his command agents with which he can induce such a degree of purgation as desired within an hour or two without inducing great excitement or depression. We know quite well that there are those veterinarians who have a dread of the action of these drugs, drawn from their experience or observation, but, so far as we have been able to determine, their fears have been aroused through errors in dosage or otherwise.

In our hands, in small doses, repeated and increased as the case may demand, we have found them free from danger and unpleasant consequences, far safer than aloes, and so prompt that their action may be obtained before the crisis of the disease is reached instead of enduring the vexatious and oftentimes dangerous delay in case of aloes. Not only do these arouse the intestinal

secretions, but they stimulate as well the skin, liver and salivary glands. It seems to us that in such wound infections as lymphangitis in the horse where alætic purgation holds a high repute, far better results are attainable by the more prompt action of some of these highly active vegetable alkaloids.

Apparently they have been little used in wound infections, but to us they seem to richly invite an extended clinical trial. In our experience the most thoroughly illustrative case of the use of any of these was that of eserine and pilocarpine in the handling of acute mammitis in a cow which, although not in the animal to which our paper is specifically devoted, is yet so suggestive that its inclusion seems warranted by analogy.

The cow, a profuse milker, weighing 1,000 pounds, had calved on March 6, 1900, and later in the day had been submitted to the Schmidt (potassium iodide) treatment for severe parturient paresis, to which there was prompt response followed on the 7th by mammitis on the left side and on the 8th by intense mammitis involving the entire gland, which was greatly enlarged, hot and tender. The milk was flocculent, yellowish in color and contained great numbers of micrococci. Temperature at noon 103 F., muzzle dry, appetite in abeyance, general depression. Into each quarter of the udder there was injected one-half pint of a 10 per cent. solution of hydrogen peroxide and externally there was applied with massage equal parts of Tr. Camphor, Fl. Ext. Belladonna and Olive Oil. Hypodermically we gave two grains each of eserine sulphate and pilocarpine hydrochlorate.

At 6 P. M. the temperature had risen to 105.8 F., the patient was down and required urging and assistance to get her up, was very greatly depressed, listless and wholly inattentive to her calf. The swelling and tension of the udder had increased. The indications pointed to mammary gangrene and an early fatal termination. The bowels had moved but little. The previous dose of eserine and pilocarpine was repeated.

At 8 P. M. the bowels had moved freely, the temperature had dropped to 103.4, the tension of the udder had diminished, the cow was showing some maternal instinct. The eserine and pilocarpine were repeated for a third time.

Throughout the course of administration the eserine and pilocarpine had acted reliably, promptly and efficiently. Within a few minutes after administration vigorous peristalsis was clearly recognizable in the intestines and especially in the rumen.

On the morning of the 9th the patient was essentially convalescent, her appearance was bright, appetite good, temperature normal, the mammary tension had disappeared, the milk secretion, still abnormal, had greatly improved in quality and quantity, and from this period forward the limited mammitis gradually receded.

We believe we were correct in attributing the result to the effects of the eserine and pilocarpine. The case appeared to us hopeless by any ordinary method; we had no faith in the intermammary injection for it could not be forced into the tumefied infected acini, nor could we hope for good to come from the external application.

We do not pretend to state the exact manner in which these drugs act to overcome infection or its effects upon the system. It is not the purgation alone, for that is not essential. In indigestion this is well observed. We do not need to purge an animal nor induce narcosis. If we arouse a peristalsis equivalent to the normal, the indigestion and colic ceases, the tympany vanishes, the fermentation of alimentary contents disappears, the peristalsis or some functional activity associated therewith has proven an efficient and prompt antiseptic. So, in wound infection or similar bacterial invasions, it may not be the purgation or salivation or perspiration, but some quite as potent arousal of a functional activity, undefined as yet, in the tissues and organs of the body.

But the clinical fact which should impress us most is that the maintenance of the normal functional activities of the excretory organs by judicious diet, or their arousal to their normal or hyper-activity by stimulation is of essential importance in the

handling of wound infection and that the practitioner is derelict in his duty whenever he neglects these important measures. We consider drastic purgation an equally pernicious extreme to neglect, but commend rather such maintenance or stimulation of excretory activity as a proper study of the case indicates, from the normal peristalsis to moderate purgation unaccompanied by distress or depression.

This can be accomplished in the horse usually by means of three-quarters to one and one-half grains each of eserine and pilocarpine, beginning with a safely small dose and repeating, and, if need be, increasing the amount until the desired effects are obtained.

In equine practice it has been too largely our custom to rely upon those purgatives which, if they act at all, do so violently a day or two after administration when many of our patients should really be convalescent instead of in the throes of superpurgation. Prompt, moderate and gentle catharsis has been little studied and less practiced, though, in our judgment, it has great value not alone in wound infection, but wherever circumstances call for the prompt elimination of disease products and of ailment contained in the digestive tube which can only unfavorably affect the system while remaining in a putrefactive state.

In wound infection also the introduction into the system of a normal salt or physiologic saline solution has been highly recommended by some practitioners. In many respects its action seems somewhat comparable to that of eserine, pilocarpine and arecoline. Apparently it exerts a powerful stimulant effect upon the excretory organs and tends to overcome the depression arising from severe wound infection. Its use has been largely limited to critical cases where immediate stimulation is essential for avoiding impending death. The available data upon the subject scarcely suffice as a reliable basis for judging of its comparative merits and it deserves more extended clinical study as related to wound infection in horses.

In suggesting a common plan for the local handling of wound infection, we placed in the second position, disinfection, the kill-

ing of the pathogenic bacteria and destruction of their toxins in the wound; in the systemic handling we may in an analogous fashion ascribe to disinfection the second position of importance.

At the very outset, however, the question may arise, can we successfully apply systemic disinfection? The answer must be in the affirmative in some cases at least. In the malarial diseases of man it is generally, if not universally, conceded that quinine destroys the plasmodium. In human syphilis mercury and iodine are claimed to have an actual bactericidal action upon the micro-organism of that affection. Among the diseases of domestic animals, probably, the two in which systemic disinfection has been most clearly demonstrated clinically are actinomycosis and botryomycosis, each wound infections of a chronic type. Chronic infections offer better opportunity for clinical study because of their long duration and horizontal course, but, in our judgment, we may just as truly disinfect the system in acute infections.

Actinomycosis, because of its nature and its known bacteriology, offers especially favorable opportunities for a clinical study of the effects of *systemic* medication upon *local* infection. For some decades it has been recognized that systemic medication with iodine exerts a specific bactericidal effect upon the pathogenic organisms localized in a manner which might almost be termed extra-systemic. Their massing in somewhat isolated groups would suggest extraordinary difficulty in reaching them through drugs introduced into the system, without jeopardizing the life of the patient and yet it is of all animal diseases the most uniformly recognized as being subject to disinfection through the system.

Next to actinomycosis, and in a sense of even more interest in our theme, is botryomycosis. This malady we know as a wound infection almost wholly limited to the horse and behaving very much after the fashion of actinomycosis.

Some investigators assert that it is caused by a specific organism known as the *botryomyces equi*, while others contend that the affection is due to a form of bacteria not distinguishable from

those met with frequently in ordinary wound infection, and that the disease acquires its clinical characters from the peculiarities of the reaction of the tissues of the horse to bacterial irritation. For our purposes we may well leave the biologic controversy wholly to others and concern ourselves with the important fact that botryomycosis of the horse is a wound infection and that it departs but little, if at all, in its biologic characters from purulent wound infection; and that nevertheless it is amenable to systemic disinfection by the same drug as actinomycosis, iodine.

The specific effect of iodine, in the form of potassa iodide, upon this disease has been well known and recognized by numerous veterinarians for several decades. We have had occasion to use the drug in combination with operative interference in numerous cases.

In one instance there entered our clinic on October 3, 1896, a horse showing an old indurated scar from fistulous withers, a similar record of prior poll evil and a small abscess upon the poll. With free incision and severing of the ligamentum nuchæ, followed by daily disinfection, the poll evil had apparently recovered by January 5 and on March 12, 1897, the patient was again presented for treatment of fistulous withers. Again free opening of the abscess was followed by healing, but the sclerosis of the tissues persisted until we eventually prescribed iodide of potash in one-half ounce doses for 16 days, which caused a disappearance of the induration, a markedly increased vigor of the patient and a permanent cure of the poll evil and fistulous withers.

In this instance the poll evil and fistulous withers had apparently been alternating for a time prior to entrance in our clinic and throughout the induration of the tissues had remained, accompanied by a definite wound infection cachexy, with debility and emaciation. The action of the iodide to all clinical appearances was specific, dissipating at one and the same time the wound cachexy and the localized chronic infection. Not alone was it clinically demonstrated that the iodine introduced into the system had accomplished disinfection in a peripheral part of the body,

but it had surpassed the efficiency of locally applied disinfectants and had accomplished what the latter had failed to do. The results intimate that the infection had become disseminated amongst the living animal tissues and had penetrated an important distance beyond the wound surface, so far that the local application of the disinfectants was impotent.

Another clinical observation illustrative of this disinfectant action was afforded by a four-year gelding entered February 8, 1897, with a pectoral fistula into which a probe could be passed some eight inches. The history of the case as related by the owner was that the animal had received a wound in the pasture when but three months old, presumably from a snag, and that a digital exploration of the wound failed to reveal any foreign body or other noteworthy conditions. The wound healed promptly, and so remained for more than two years, but the animal showed intermittent lameness. Finally, when about three years old, recurrent abscessation in the pectoral muscles became established. First, the animal would become severely lame, the pectoral muscles would become swollen, tense, painful, an abscess would mature, rupture and discharge a small amount of pus while the lameness would disappear and the patient return to work for three or four months when the previous clinical history would repeat itself. Once Prof. Law had opened the fistula and failed to find any cause for its recurrence, despite a diligent search. All this time the general health of the patient was excellent; he was fat, vigorous and had a healthy, glossy coat.

Believing from the history that a foreign body was deeply lodged in the part, we secured the animal and carefully traced the tortuous fistula then present for a distance of about eight inches across the long axis of the sterno-aponeuroticus muscle, and to a depth of two inches, looking in vain for the suspected foreign body and finding nothing to warrant the continuance or recurrence of the fistulous tract.

The wound healed tardily, its margins became swollen, indurated and on the whole the wound seemed very irresponsive to disinfectants.

On February 13 the patient was put on 4.8 drams potassium iodide daily while to the wound was applied an iodine-potassium iodide solution.

The result was quickly apparent; the wound margins softened rapidly and soon became reduced in volume to the normal, while the granulations assumed a healthy aspect and the wound cavity closed rapidly. The result was a prompt and enduring recovery.

Quite parallel in many respects was the case of an eight-year draft gelding used on a nursery farm, which had been lame for two years, much of the time to a sufficient degree to put him out of work. Along with the lameness there was recurrent abscessation of the flexor tendons a few inches above the fetlock where, at the sides, close to the suspensory ligament, small abscesses would form, mature, rupture and leave a slowly healing fistula and a slight degree of permanent induration. The abscesses and fistulae had been handled by a neighboring veterinarian without result.

When presented, March 25, 1903, there was present a small fistula above the fetlock from which there was a slight discharge of thin pus, the animal was unworkably lame, though in excellent general condition.

Secured upon the operating table, the fistula was opened freely, but nothing discovered to explain its persistence or the recurrence of abscesses. The wound was dressed regularly with Tr. Iodine, but the progress was unsatisfactory in relation to suppuration, healing and lameness.

On April 10 we began a course of potassium iodide, administering one ounce daily till 14 ounces had been given.

Again the clinical evidence of the disinfecting power of the drug was strong and the progress of the case was fairly rapid and uninterrupted so that the wound was soon healed and later the patient was turned to pasture where he could be watched, but there was no recurrence of the abscesses and the lameness gradually receded until he was returned to work the following autumn permanently recovered.

In another case, while the result was unsatisfactory, the internal medication was nevertheless interesting.

The patient was a six-year gelding entered in our clinic October 31, 1899, the owner having procured the animal during the previous winter, and soon afterward there occurred an abscess in the right flank followed by a fistula and later another abscess occurred in the left flank.

The horse was somewhat thin in flesh, but looked well, though perhaps moving a trifle stiffly. In each inguinal region was a fistula through which a probe could be passed up to and through the inguinal ring. There were no inguinal tumors. Manual exploration per rectum revealed two large, indurated masses projecting upward from the abdominal rings, the tumors being some four inches in diameter and projecting upward half way across the pelvic cavity, largely obstructing it. The tumors were very hard, somewhat uneven and conoid, the base of the cone resting upon the abdominal ring. Behind these two basic tumors other fibroid abscesses could be detected beneath the peritoneum, upward and forward along the abdominal walls, varying in size from two or three to five inches in diameter.

Diagnosis: Scirrhus cord (botryomycosis) following castration, probably four or five years before. The absence of inguinal tumors suggested that scirrhus cord having occurred the external tumors had been excised close against the abdominal ring converting the case into what we might term internal or abdominal scirrhus cord.

The revelations of rectal exploration made operative interference virtually hopeless and, instead, relief was sought by means of the internal administration of potassium iodide. The patient, weighing around 1,000 pounds, received one ounce on November 1, two ounces daily until the 5th, when it was omitted until the 7th, when two ounces daily were again given till the 16th, then discontinued till the 20th, after which one ounce daily was given till December 10, when its discontinuance was necessitated by the advent of iodism. In forty days the patient had received 48 ounces of potassium iodide, with but slight iodism evidenced

by loss of appetite, lachrymation and nasal discharge. Within five days the tumors emanating from the internal inguinal ring was markedly softer, though not perceptibly smaller, and in eight days they were definitely decreased in size and for a time they continued to diminish in volume and soften in consistency, but the effect was not continued nor efficient. The effect was clear enough, but could not be pushed to complete elimination.

Under chloroform two of the abscesses beneath the peritoneum were opened through the abdominal wall, an assistant with his hand on the tumor, *per rectum*, directing the incision. In the same manner one internal inguinal tumor was incised, but the pus cavity not found. Several times efforts at evacuating tumors by incision were made with varying success. Once we observed the rectal expulsion of pus, evidently the result of the rupture of an abscess into the rectum or floating colon. Wound infection cachexy gradually became evident, the appetite capricious, emaciation marked, the movements of the animal slow and stiff and on April 4 he was destroyed.

Autopsy revealed extensive peritonitis; adhesions were present between the colon and diaphragm, with abscesses in their walls. Adhesions were present between the fourth section of the colon and the duodenum. The liver was adherent to duodenum, stomach and diaphragm. The fourth portion of the colon was adherent to the right kidney, which latter contained an abscess weighing about ten pounds. Abscesses varying in size from one to five inches in diameter were found in the diaphragm, spleen, between stomach and spleen, in the pelvic connective tissue, between the bladder and pelvis, causing adhesion, and beneath the peritoneum here and there along the floor and walls of the abdomen from the pubis to the sternum.

The abscesses all had the characteristics of botryomycosis, thick, yellowish pus, variable in quantity, and very thick, fibrous, indurated walls. The combined weight of the abscesses was estimated at forty pounds.

We here had to contend with a volume of infection beyond the power, so far as we now know, of systemic disinfection and

presented insurmountable operative obstacles, yet the specific effect of the iodine was present and clearly recognizable.

Reasoning from these clinical evidences of the efficiency of potassium iodide in chronic purulent infections we have made a general application of these facts to the handling of acute purulent infections occurring as a sequence to surgical or accidental wounds.

Illustrative of this use is that of extensive purulent infection in a two-year colt following castration, the scrotum being greatly swollen, the colt weak, with loss of appetite, high fever and profuse suppuration. Rectal exploration revealed an abscess six inches in diameter extending into the abdominal cavity from the internal abdominal ring, whither the infection had traveled along the spermatic cord.

Along with rigid local disinfection, the colt was given one-half ounce of potassium iodide daily for about two weeks, during which time the intra-abdominal tumor gradually receded and finally disappeared while the systemic disturbances gradually abated, the appetite returned and complete recovery took place.

Similarly we frequently prescribe potassium iodide in cases of extensive suppuration of wounds with serious systemic complications; in infected wounds of tendon sheathes, whether operative or accidental, in threatened chloroform pneumonia and the like.

In other cases we rely upon quinine as an internal antiseptic in preference to or in conjunction with the potassium iodide, which may be well illustrated by the following case:

A four-year mare affected with nymphomania was entered in our clinic May 28, 1907, for ovariectomy, which was performed on the following day. On May 30 her temperature was 101.5 F. and on June 1 at 3 P. M. it was 103.3, the abdomen tense and tucked up, tender on pressure, respiration shallow, pulse weak and thready, appetite in abeyance. A diagnosis of extensive septic peritonitis was made. She was given 1 ounce potassium iodide and 1½ ounces quinine. At 7 P. M. the temperature had not improved and another 1½ ounces quinine was given. At

11 P. M. the temperature had reached 104, the expression anxious, pulse very weak, no food or water taken. A third dose of quinine was given with $1\frac{1}{2}$ ounces alcohol, making a total of $4\frac{1}{2}$ ounces quinine in eight hours, to a mare weighing less than 1,000 pounds. Up to this time the symptoms had indicated an early fatal termination, as she was failing very rapidly, but now her fever abated and on the following morning she appeared bright and comfortable, temperature 102, appetite fair and general indications good. During the day she received 3 ounces of quinine and 1 of potassium iodide. During this and the preceding day she had received enemata of warm sodium bicarbonate solution.

On June 3 in the morning the temperature was normal and at 8 P. M. it had again risen to 102.8, accompanied by colic, on which account she was given $1\frac{1}{2}$ ounces powdered ginger and 2 ounces quinine, which afforded relief.

June 4 at 8 A. M. the temperature was 101.5, with good pulse and appetite. One and one-half ounces potassium iodide was given. At 8 P. M. the temperature was 102.8 and $1\frac{1}{2}$ ounces quinine sulphate was administered. On June 5, 6 and 7 slight fever was present, but the patient was bright, appetite good and bowels moving normally. During this time she received daily 1 ounce potassium iodide and $1\frac{1}{2}$ ounces quinine, after which medication was discontinued and recovery was uneventful.

This small animal had taken between 3 P. M. on June 1 and June 8 $15\frac{1}{2}$ ounces quinine and $6\frac{1}{2}$ ounces potassium iodide.

We could enumerate many cases of a similar character, but they could not well be more illustrative. In many cases of acute septic fever we administer the quinine alone and have similar results, though we frequently think the combination advantageous.

When the infection is acute, the fever high and the case critical we prefer the quinine; when not so urgent and more deliberation is practicable, we prefer the iodide, and now and then we see fit to combine or alternate them.

Our dosage, it will be observed, is quite in excess of that recommended by writers on *materia medica*. Ours may be larger than advisable. In disinfection, according to our view, we must introduce into the mass to be disinfected an amount of the drug sufficient to induce the desired result. If we take a jar of infected bouillon and attempt to destroy its bacteria, should we add a volatile disinfectant drop by drop, slowly, the first may volatilize and escape before the succeeding drops have entered the mass, and a sufficient concentration to disinfect may not occur, although more than enough of the disinfectant has in time been used. In the animal body most disinfectants are rapidly excreted, and if given in small doses, too far separated, may never reach that concentration essential to efficiency, regardless of the total volume eventually consumed.

Others plead expense as an argument against these drugs in the quantities named, but we believe that this is not well grounded. Drugs are cheaper than calls or failures. The expense is by no means excessive, and, compared with many forms of treatment, is very economical. The sera advertised for similar purposes are far more costly and yet find advocates, even though probably far less efficient.

Many would hesitate to administer such doses lest they prove toxic. The horse is almost immune to the toxic action of iodine, and when iodism finally occurs as a result of heavy administration, it is confined to a brief loss of appetite with slight flow of tears. Strangely enough, some writers give a larger dose for the ox than the horse, when the latter will withstand five to eight times the quantity that the former can endure.

The horse also has a high power of resistance to the toxic effects of quinine. Rarely by heavy dosage we have noted trembling of the limbs, unsteadiness and more or less profuse diarrhæ.

The efficiency of quinine in wound fever in the horse has been denied, but usually on wholly inadequate grounds. We find the small doses usually recommended for these cases wholly worthless and a waste of the drug, and only get the desired results when it is rapidly pushed to or near the physiologic limit.

That limit is to be determined separately for each case. In the instance mentioned of septic peritonitis the amount of quinine given probably seems to many as unwarranted and unsafe. It was neither as is amply shown by the results. Here was a critical case, apparently doomed to early death, local disinfection insurmountably barred and some mode of systemic disinfection offering the only shadow of hope for the life of the patient. In our observations, the more intense the infection the larger dose required and ordinarily the first symptoms of toxic action do not appear until the septic condition has been overcome or controlled.

Various other drugs are highly recommended for these uses by writers and practitioners. Among these are calcium sulphide and sodium sulphite, but we have not been able to observe good clinical evidence of their efficiency.

Fröhner and others highly recommend camphor and alcohol, both of which are doubtless good, and especially the latter.

More recently animal sera have been proposed and commended by some, but their use is as yet in the experimental stage. The antistreptococcic and polyvalent sera are offered as effective remedies against wound infections, but they have not yet won general confidence. The profession, as a whole, probably admits the basic correctness of the theory, but are not yet ready to accept in practice the products offered. Wound infection is an extremely variable condition, due to a well nigh endless variety of organisms and, while most practitioners might accept the protective serum made from a given form of bacteria for infection due to that special, he does not know, as a rule, the species with which he is dealing in a given case and is not ready to rely upon a serum made from other species. The polyvalent serum, to the average mind, adds to complexity without heightening efficiency. The problem of serum therapy in wound infection is one of great importance which may ere long prove of great practical utility.

We have brought forward this subject not to in any wise supplant the proper local handling of wounds; in many cases that alone suffices abundantly, but in others, like in the spayed mare

above related, with septic peritonitis, no opportunity for local disinfection is presented, and entire reliance needs be placed upon systemic disinfection. A large proportion of instances of wound infection present neither of these extremes, but occupy a middle ground where both local and systemic handling are available and demanded, but on the whole we have greatly neglected a clinical study of the problem presented.

THE salary of the Chief Veterinarian in the Philippine Islands is fixed at \$2,500 per annum.

SCIENCE GUILTY OF MANY MISNOMERS.—There are terms in certain departments of science that positively misname the products to which they are applied.

The word "oil" in its more comprehensive and indiscriminate uses is made to include hydro-carbons, like petroleum, and also many other substances that have an oily appearance, like "oil of vitriol," which is not oil at all, but sulphuric acid.

Strictly speaking, the mineral oils, including all petroleum products, are not oil, although we speak of "coal oil" and "kerosene oil."

The best classifications of oils do not include mineral hydro-carbons, like naphtha, paraffin and petroleum, but treat only the two well-defined groups—fixed oils and fats, and the essential or volatile oils.

"Copperas" is not copper, but sulphate of iron. "Salt of lemon" has nothing to do with the fruit of the lemon tree, but is potassium binoxalate, or potash treated with oxalic acid.

"Carbolic acid" is not an acid, but a phenol. In structure it is allied to the alcohols, and has only slight acid properties. "Soda water" has no trace of soda. "Sulphuric acid" contains no sulphur. "Sugar of lead" is innocent of sugar.

"Cream of tartar" has nothing to do with cream, nor "milk of lime" with milk. "German silver" is a stranger to silver, and "black lead" is not lead at all, but graphite. "Mosaic gold" is a sulphide of tin.

These misleading names have come down from the vocabulary of an early and inexact chemistry. As popular science extends, the old terms are yielding to the more scientific nomenclature.

THE VETERINARIAN AND MEAT INSPECTION.

BY SAMUEL G. HENDREN, V. M. D., MONTCLAIR, N. J.

A paper presented to the Veterinary Medical Association of New Jersey.

The public interest created by the recent agitation concerning the meat supply of this country has caused many veterinarians engaged in private practice to direct their attention to the subject of meat inspection. This is perfectly natural, because the importance of having our meat properly inspected for wholesomeness and disease, is becoming more appreciated every day; and wherever intelligence and conscientiousness prevail, the veterinarian is looked to for this inspection. These conditions have brought about a great extension of meat inspection work, in many towns and cities having a regular meat inspection system, and the inauguration of such work in many communities where no attention was ever before paid to the wholesomeness and healthfulness of their meat supply. These circumstances have made it possible for quite a number of veterinarians to see awaiting them in the near future the position of meat inspector in their community. It is the exception for the veterinary practitioner to find the time and opportunity to apply himself to practical meat inspection on the killing beds, and unless he has had some such experience he naturally feels a desire for a little more knowledge when he accepts a position as meat inspector. It is for these men more especially that I have prepared this paper, my object being to present some practical information that will enable them to fill their respective positions with a little more confidence in themselves.

In the post mortem inspection of food animals a good knowledge of certain regional anatomy, together with the physiology associated with it, will be found most useful. This is more especially true of the Lymphatic System, the important organs, and the circulatory system. The location of the different groups

of lymphatic glands is considered very important. The inspector will probably be occasionally saved from quite an embarrassing position if he is well acquainted with how many ribs each animal has, he should be able also to readily point out in the carcass such structures, as the Adrenals, Thyroid or Thymus glands; these tissues are now used extensively in medicine as therapeutic agents, and may be the subject of inquiry at any time. In the inspection of meat the examination of an eviscerated carcass for disease is valueless so far as an negative diagnosis is concerned; for unless some lesion of disease remains, how are we to tell if any disease was present? Any person who would be unscrupulous enough as to place the carcass of a diseased animal on the market would most surely be shrewd enough to first remove all evidence of disease; but such trimming sometimes is in itself evidence of something wrong, as in the case of the pleura being stripped from the ribs, or the peritoneum from its usual attachments; as this procedure has been followed the circumstances would look very suspicious, and the carcass should be condemned. It is possible for an animal to suffer from an extensive tuberculosis of the lungs, liver, glands and other tissues, and yet the dressed carcass will show no lesions of the disease that will lead to a diagnosis. We will then proceed with the understanding that by meat inspection we mean the ante-mortem and post-mortem examination of the animal at the time of slaughter. In describing a method of meat inspection, I can do no better than follow the rules and regulations of the Bureau of Animal Industry issued for the guidance of the government inspectors. Here we find the animal to be converted into meat or meat food products, followed by the inspector, from the ante-mortem examination to the form in which it is finally offered for sale to the consumer. Before any attempt is made at inspection under government regulations, the sanitary conditions and facilities for inspection must first meet the approval of the inspector in charge, a careful ante-mortem examination is made of all animals about to be slaughtered, all those found suffering from any disease or condition that would be liable to impair their

wholesomeness or healthfulness as food are tagged with a metal tag as suspects, and must be killed separate from the regular killing. At the time of slaughter a careful post-mortem examination is made of all animals, special care being taken that every part of each individual animal is kept separate for identification, until the animal has been passed for food or otherwise disposed of. These parts usually consist of the head, tail, caul, thymus gland, bladder and the entire viscera. The inspector sees every animal eviscerated and in the case of hogs a special examination is made of the cervical glands for tuberculosis. If any lesions of disease are found that would probably render the meat unfit for food, the carcass is tagged and retained for a final examination, when it is either passed for food, lard or tallow or condemned. This is a very rough sketch of meat inspection as conducted under the rules and regulations of the Bureau of Animal Industry, but it is sufficient to demonstrate the principals involved, and the importance that should be attached to them. From this rough outline you can readily see that the inspection of meat is not considered a very simple matter by those best fitted to judge. Contrast this method, if you will, with procedure we too commonly find in some cities and towns, where a layman acts as meat inspector, his duties being principally to pass on for decomposition the several carcasses and cuts he may find offered for sale in the different market places and shops. You can then see more clearly how inseparable are the veterinarian and intelligent meat inspection. To become a competent meat inspector, it is necessary that a good knowledge be had of comparative anatomy, physiology, pathology, bacteriology, sanitary science and other important branches of veterinary medicine. Naturally a man thus qualified will be a veterinarian and his knowledge of and experience with food animals should command for him the distinction of an expert in the inspection of meats. I believe that veterinarians should be more active in pressing this point. I believe they have a right by virtue of their special knowledge to insist on having their profession represented on their local boards of health; and in all other positions where a

scientific knowledge of animals and their diseases is a necessary qualification to properly perform the duties of the office. Probably many of you can even now recall instances in your own locality where a layman is holding a position, the duties of which require the knowledge of a veterinarian.

It is not sufficient that we know our worth we must let the world know it. In the inspection of meat the first step is to have the place of slaughter and all places where the meat is handled, together with all apparatus, utensils and attendants, in a cleanly and sanitary condition. This is absolutely necessary if a clean and wholesome meat supply is to be produced. It is important that the inspector be provided with the proper facilities for inspecting. These consist simply of having the slaughtering done in a manner that will enable the inspector to properly perform his duties. This is a very important feature in a large abattoir where animals are slaughtered very rapidly, but where slow methods are followed it is not so difficult to inspect. An ante-mortem examination should be made of every animal before it is slaughtered. This examination will often cause us to look for conditions on post-mortem we would not have looked for had we not made the ante-mortem. A careful ante-mortem examination makes the post-mortem more intelligent and just. A post-mortem examination of a carcass for food cannot maintain its full importance without a careful ante-mortem. It is often very probable that the observations made on ante-mortem will decide an inspector for or against a carcass on post-mortem. The post-mortem examination is really the meat inspection proper, the animals commonly slaughtered for food in this country are cattle, calves, sheep and hogs.

Some conditions and diseases are common to all these special, such as injuries, bruises, suppurative conditions, emaciation, pregnant and parturient conditions and the acute diseases. I will say but a very few words regarding these conditions as all veterinarians are well able to pass upon an animal when found suffering from any of them. Bruises, injuries and suppurative conditions should be treated according to their extent; if of such

a nature as to affect the entire carcass, the whole carcass should be condemned. The carcass of all animals showing advanced pregnancy, or those in a parturient condition, having within ten days given birth to young, can be permitted to be rendered into lard, or tallow, provided no septic infection or other disease or condition is present, that would not warrant it. In such a case it should be condemned. Carcasses of emaciated and anæmic animals which show a serious infiltration of the muscles, producing a slimy appearance, are unwholesome and should be condemned. The carcass of an animal that has suffered from any of the acute diseases sufficiently to produce a generalized inflammation of the lungs, pleura, peritoneum, intestines or uterus, should be condemned. All animals in a dying condition should be condemned. Some diseases and conditions are found more especially in some one species of animal.

In calves immaturity is a common condition, especially in the spring of the year. The carcass of no animal under three weeks of age should be passed for food; and when the muscles are pale, devoid of fat, flabby and moist refusing to firm, the carcass should be condemned irrespective of age, as it has been ill nourished and is very unwholesome for food. In sheep caseous lymphadenitis is sometimes found, but when the lesions are confined to the superficial lymphatic glands, or a few nodules in an organ, if the carcass is well nourished it may be passed for food, after the diseased parts have been removed. If the disease shows a tendency to be extensive or the carcass emaciated, it should be condemned. Nodular disease of the intestines is a very common disease in sheep. It is caused by the *Cesophagostoma Columbianum* and is characterized by small grayish nodules in the intestinal walls. These nodules, when cut into, show a green color inside. Unless so extensive as to produce some constitutional disturbance this disease does not condition the carcass. Hogs suffer from several skin diseases, such as Urticaria, erythema and various blotches and discolorations; if at all extensive the carcass should be skinned. The diseases that require

the most attention in hogs are hog cholera, swine plague and tuberculosis. Tuberculosis will be taken up in connection with the same disease in cattle.

The lesions of hog cholera and swine plague are found principally in the lymphatic glands, skin, kidneys, bones, lungs, heart, serous membranes, spleen and intestines. The lymphatic glands show a general hemorrhagic condition throughout the body; the heart, kidneys, skin and serous membranes show hemorrhagic spots; the intestines ulceration of the mucous membrane, especially around the Ilio Cæcal valve; the lungs, all stages of inflammation. You will find these lesions present according to the nature and extent of the disease, and carcasses are graded as fit for food, lard or offal accordingly. The rules and regulations of the Bureau of Animal Industry grade such carcasses as follows:

Carcasses showing well marked and progressive lesions of hog cholera and swine plague in more than two of the organs, skin, kidneys, bones or lymphatic glands shall be condemned.

Carcasses showing slight lesions which are confined to the kidneys and lymphatic glands may be passed.

Carcasses which reveal lesions more numerous than those described for carcasses to be passed, but not so severe as the lesions described for carcasses to be condemned, may be rendered into lard, provided they are cooked by steam for four hours at a temperature not lower than 220 degrees F.

In inspecting carcasses showing lesions of the skin, bones, kidneys or lymphatic glands, due consideration shall be given to the extent and severity of the lesions found in the viscera.

Cattle suffer quite frequently from Actinomycosis, but fortunately it is most often confined to the regions of the head and throat affecting the bones and glands of these regions. When there is no evidence of the disease having extended to any other part of the body, the affected part, including the entire head and tongue, are removed and condemned; the balance of the carcass, if otherwise fit for food, is passed. If the disease has extended to any other part of the body, the carcass is treated the same as

for tuberculosis. The inspection for tuberculosis of animals killed for food is one of the most important duties of the meat inspector. It is considered so important by the Bureau of Animal Industry that a special examination is made of the cervical glands of all hogs for this disease alone. I think we all feel satisfied that tuberculosis can be conveyed from the domestic animals to man, and for this reason we should be extremely careful in examining animals affected with this disease intended for food.

The records of the Bureau of Animal Industry show that of 96,000 hogs retained for tuberculosis, 92 per cent. were affected in the cervical glands, and of this number 30 per cent. showed no other lesion.

In the "American Veterinary Review" for December, 1906, Dr. Ward, of Minnesota, reports some very interesting facts concerning this disease among hogs. He reports that one packing company alone lost at South St. Paul \$50,000 a year from tubercular hogs that were condemned. He also states that 350 hogs shipped in from Southern Minnesota were condemned in one month; and that 75 per cent. of a load have been repeatedly condemned for tuberculosis. He also reports a case where 72 hogs of a shipment were condemned for tuberculosis, and investigation showed that these hogs had eaten a cow presumably dead from tuberculosis, and the hogs on this farm fed behind a herd of cattle, 50 per cent. of which Dr. Ward thought tubercular. I mention these reports to call your attention to the prevalence of tuberculosis among our food animals. This becomes a matter of vital importance when we stop to consider the results of the recent experiments of our Bureau of Animal Industry at Washington. These experiments have shown that an acute miliary tuberculosis can be produced in a very short time by the injection of virulent tubercle bacilli in the tail of an animal. It seems almost beyond question that a pulmonary tuberculosis is very frequently contracted through the digestive tract. I cannot report these experiments here, but you should all read them. I am sure you will find in them many very interesting discoveries.

They are contained in Bulletins Nos. 38, 88 and 93. I think it has now been definitely concluded that hogs contract tuberculosis principally through the digestive tract by feeding on the milk and feces of tubercular cattle. Dr. Mohler demonstrated in his experiments that pulmonary tuberculosis could be contracted through the digestive tract. He says that the location of tuberculous lesions in the body are undoubtedly dependent upon other causes than the channel through which the infectious material enters. Tubercle bacilli may pass through the intestines and glands without leaving any lesions, and locate in the lungs, pulmonary glands, liver or some other tissue. The reason why the lungs and liver are so frequently the seat of tuberculosis is the tubercle bacilli pass through the lymph glands and vessels to the blood stream, and when they reach the great capillary system of these two organs they are filtered out and remain there. That pulmonary tuberculosis is very frequently contracted through the digestive tract is very important when considered in connection with meat inspection. It is for this reason that I have gone so far into the subject in this paper. It seems that the veterinary profession should do much to reduce the number of tubercular animals on the farm and in the feed lot. I think something can be gained along this line if we as veterinarians would impress more fully upon the owners of such animals the danger of having a tubercular animal on the place, and especially of feeding hogs on the milk and feces of tubercular cattle.

If a hog has tuberculosis the sub-maxillary glands will almost invariably be affected. In steers we find very little of the disease. Occasionally it will appear in good cattle, but it is most frequently seen in cast-off dairy cows. Any further description of the disease proper is unnecessary, as you are all very familiar with it. I will now take up the disposition of a tubercular carcass. The highest point of efficiency in this respect, I think, has been reached in the Rules and Regulations of the Bureau of Animal Industry. These I will follow:

(d) Pyemia and septicemia.—Carcasses showing lesions of either of these diseases shall be condemned.

(e) Rabies.—Carcasses of animals which showed symptoms of rabies before slaughter shall be condemned.

(f) Tetanus.—Carcasses of animals which showed symptoms of tetanus before slaughter shall be condemned.

(g) Malignant epizootic catarrh.—Carcasses of animals affected with this disease and showing generalized inflammation of the mucous membranes shall be condemned.

(h) Hog cholera and swine plague.—(1) Carcasses showing well-marked and progressive lesions of hog cholera or swine plague in more than two of the organs (skin, kidneys, bones, or lymphatic glands) shall be condemned.

(2) Carcasses showing slight lesions which are confined to the kidneys and lymphatic glands may be passed.

(3) Carcasses which reveal lesions more numerous than those described for carcasses to be passed, but not so severe as the lesions described for carcasses to be condemned, may be rendered into lard, provided they are cooked by steam for four hours at a temperature not lower than 220 degrees F.

(4) In inspecting carcasses showing lesions of the skin, bones, kidneys, or lymphatic glands, due consideration shall be given to the extent and severity of the lesions found in the viscera.

(i) Actinomycosis, or lumpy jaw.—(1) If the carcass is in a well-nourished condition and there is no evidence upon post-mortem examination that the disease has extended from a primary area of infection in the head, the carcass may be passed, but the head, including the tongue, shall be condemned.

(2) If the carcass is in a well-nourished condition and the disease has extended beyond the primary area of infection, the disposition shall be made in accordance with the regulations relating to tuberculosis.

(j) Caseous lymphadenitis.—When the lesions are limited to the superficial lymphatic glands or to a few nodules in an organ, involving also the adjacent lymphatic glands, and the carcass is well nourished, the meat may be passed after the affected parts are removed and condemned. If extensive lesions,

with or without pleuritic adhesions, are found in the lungs, or if several of the visceral organs contain caseous nodules and the carcass is emaciated, it shall be condemned.

(k) Tuberculosis.—All carcasses affected with tuberculosis and showing emaciation shall be condemned. All other carcasses affected with tuberculosis shall be condemned, except those in which the lesions are slight, calcified, or encapsulated, and are confined to the tissues indicated in any one of the following five paragraphs, or to a less number of such tissues, and excepting also those which may, under paragraphs (6) and (7) below, be rendered into lard or tallow.

(1) The cervical lymphatic glands and two groups of visceral lymphatic glands in a single body cavity, such as the cervical, bronchial, and mediastinal glands, or the cervical, hepatic, and mesenteric glands.

(2) The cervical lymphatic glands and one group of visceral lymphatic glands and one organ in a single body cavity, such as the cervical and bronchial glands and the lungs, or the cervical and hepatic glands and the liver.

(3) Two groups of visceral lymphatic glands and one organ in a single body cavity, such as the bronchial and mediastinal glands and the lungs, or the hepatic and mesenteric glands and the liver.

(4) The cervical lymphatic glands and one group of visceral lymphatic glands in each body cavity, such as the cervical, bronchial, and hepatic glands.

(5) Two groups of visceral lymphatic glands in the thoracic cavity and one group in the abdominal cavity, or one group of visceral lymphatic glands in the thoracic cavity and two groups in the abdominal cavity, such as the bronchial, mediastinal, and hepatic glands, or the bronchial, hepatic, and mesenteric glands.

(6) Carcasses affected with tuberculosis, in which the lesions of the disease are located as described in any one of the preceding five paragraphs, but are slight and in a state of caseation, or liquefaction necrosis, or surrounded by hyperemic zones, and also those in which slight, calcified, or encapsulated lesions are

found in more visceral organs or more groups of visceral lymphatic glands than are specified in any one of the preceding five paragraphs, may be rendered into lard or tallow after the diseased parts are removed. The carcasses shall be cooked by steam at a temperature not lower than 220 degrees F. for not less than four hours.

(7) Carcasses in which the cervical lymphatic glands, one organ, and the serous membrane in a single body cavity, such as the cervical lymphatic glands, the lungs, and the pleura, or the cervical lymphatic glands, the liver, and the peritoneum, are affected with tuberculosis may be rendered into lard or tallow after the diseased parts are removed. The carcasses shall be cooked by steam at a temperature not lower than 220 degrees F. for not less than four hours.

(8) All condemned carcasses, parts of carcasses, or organs showing lesions of tuberculosis shall be deposited in receptacles provided for that purpose, and shall either be tanked at once or be locked in the "condemned" room until such time as an employee of the Department can see that they are placed in the tank.

(9) All heads and other parts showing lesions of tuberculosis shall be condemned.

(1) Texas fever.—Carcasses showing sufficient lesions to warrant the diagnosis of Texas fever shall be condemned.

It has not been the intention in this paper to treat the subject of meat inspection in any other than a very general manner. I have endeavored to present the principal features of the subject and will let it for the members of this association to bring out any details they may desire, according as they may see fit in the discussion.

RATS—A NATIONAL PEST.—Rats cost the United States nearly \$56,000,000 annually, according to the biological survey of the Department of Agriculture. Inoculation and all other methods studied by scientists for the destruction are said not to be equal to the old-fashioned rat trap.

FILING SYSTEM FOR BULLETINS, MISCELLANEOUS PAMPHLETS, AND CLIPPINGS.

By M. H. REYNOLDS, *Professor of Veterinary Medicine, University of Minnesota.*

It became necessary for the writer to adopt a different system of filing bulletins and similar matter and the system herein described was accordingly devised. The old system of filing in labeled pasteboard cases where one has but a small collection is fairly satisfactory, but there are several objections; for instance, some of the cases are usually over full, and others which take up just as much shelf room will have but one or two bulletins.

Again, when one wishes to find a certain bulletin on tuberculosis, for instance, he must look through the entire lot of bulletins on tuberculosis to find the one desired. The system of binding bulletins on the same or similar subjects and placing them in the library is quite satisfactory for a few bulletins on certain subjects and especially those of unusual importance but is not well adapted for miscellaneous bulletins, reprints, etc.

A collection which the writer has been accumulating for nearly fifteen years in station and university work was recently filed by the system about to be described in a very small space. By this system it is a very simple matter to put a bulletin in a proper place or to find a given bulletin.

Key to filing system for bulletins, miscellaneous pamphlets, and clippings. (All mixed and miscellaneous placed alphabetically by subject, and within subject alphabetically by author, using first author if more than one, unless indicated otherwise by underscoring.):

o. General Topics—

- .1 Abbreviations.
- .2 Bibliography.

- .3 Education.
 - .01 Veterinary.
 - .02 Industrial.
 - .03
 - .09 Mixed and miscellaneous.
- .4 Ethics.
- .5 Indexes.
- .6
- .9 Mixed and miscellaneous.
- 1 Diseases. (Alphabetically except as given decimal.) (For parasitic diseases see parasites.)—
 - .1
 - .2
 - .3 Hog cholera and swine plague.
 - .4 Tuberculosis.
 - .01 General discussion (bovine).
 - .02 Mode of infection and spread in the body.
 - .03 Dissemination.
 - .04 Human.
 - .05 Tuberculin.
 - .06 Legislation.
 - .07 Vaccination.
 - .08 Avian and porcine.
 - .09 Mixed and miscellaneous.
 - .5 Poultry diseases.
 - .6
 - .7 Texas fever.
 - .8
 - .9 Mixed and miscellaneous.
- 2. Parasites—
 - .1 External.
 - .01 Lice.
 - .02 Mites.
 - .03 Ticks.
 - .04 Flies.

-
- .05 Dips and dippings.
 - .06
 - .07
 - .08
 - .09 Mixed and miscellaneous.
 - .2 Internal.
 - .01 Nodule diseases.
 - .02 Stomach worms.
 - .03 Trichina.
 - .04 Flies, *i. e.*, bot.
 - .05 Tapeworms.
 - .06
 - .07
 - .08
 - .09 Mixed and miscellaneous.
 - .9 Mixed and miscellaneous.
 - 3. Materia Medica and Therapeutics—
 - .1 Medicines.
 - .01 Medicinal plants.
 - .02 Prescriptions.
 - .03
 - .09 Mixed and miscellaneous.
 - .2 Poisoning.
 - .01 Poisonous plants.
 - .02 Poisonous medicines.
 - .03
 - .09 Mixed and miscellaneous.
 - .3 Stimulants and narcotics.
 - .4 Disinfectants.
 - .5 Biological products.
 - .6
 - .9 Mixed and miscellaneous.
 - 4. Domestic Animals—
 - .1 Cattle.
 - .01 Feeding.

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- .02 Breeding.
 - .03
 - .04
 - .05
 - .09 Mixed and miscellaneous.
 - .2 Horses.
 - .01 Breeding.
 - .02 Conformation and type.
 - .03 Feeding.
 - .04 Judging.
 - .05 Lameness and unsoundness.
 - .06 Market.
 - .07
 - .08
 - .09 Mixed and miscellaneous.
 - .3 Sheep.
 - .01 Feeding.
 - .02 Breeding.
 - .03
 - .04
 - .09 Mixed and miscellaneous.
 - .4 Swine.
 - .01 Feeding.
 - .02 Breeding.
 - .03
 - .04
 - .09 Mixed and miscellaneous.
 - .5 Poultry.
 - .01 Feeding.
 - .02 Breeding.
 - .03 Appliances.
 - .04
 - .09 Mixed and miscellaneous.
 - .6 Judging.
 - .9 Mixed and miscellaneous.

5. Food—

- .1 Stock foods (preparatory).
- .2 Standard foods.
- .3 Food for man and its inspection.
- .4
- .5
- .9 Mixed and miscellaneous.

6. Laboratory Subjects—

- .1 Bacteriology.
 - .01 Bacteria.
 - .02
 - .03
 - .09 Mixed and miscellaneous.
- .2 Chemistry.
- .3 Histology.
- .4 Pathology.
- .5 Physiology.
 - .01 Blood.
 - .02 Digestion.
 - .03 Reproduction.
 - .04 Respiration.
 - .05 Secretion and excretion.
 - .06 Metabolism.
 - .07
 - .08
 - .09 Mixed and miscellaneous.
- .6 Apparatus.
 - .01 Microscope.
 - .02
 - .03
 - .09 Mixed and miscellaneous.
- .7 Specimens, and preserving methods.
- .8
- .9 Mixed and miscellaneous.

7. Sanitation—

.1 Milk.

- .01 Care and handling.
- .02 Inspection.
- .03 Machines.
- .04 Bacterial changes in.
- .05 Preserving.
- .06
- .07
- .08
- .09 Mixed and miscellaneous.

.2 Stabling.

- .01 Ventilation.
- .02 Lighting.
- .03
- .09 Mixed and miscellaneous.

.3 Public health.

- .01 Hygiene.
- .02
- .09 Mixed and miscellaneous.

.4 Legislation and control work.

- .01 Human.
- .02 Veterinary.
 - .001 Reports.
 - .002 Laws and regulations.
 - .009 Mixed and miscellaneous.
- .09 Mixed and miscellaneous.

.5 Disinfection.

.6 Meat inspection.

.7

.8

.9 Mixed and miscellaneous.

8. Surgery—

.1 Obstetrics.

.2 Dentistry.

- .3 Castration.
- .4 Dehorning.
- .5
- .6
- .9 Mixed and miscellaneous.

9. Mixed and Miscellaneous Subjects.

Everything is filed in a vertical position closely packed with the numbers serially arranged like the leaves of a book. We have found the most satisfactory way for marking the serial number is to use a very soft pencil with heavy lead; for instance, Dixon's Sketching Crayon; and to place the number with this at the centre, near the top of the bulletin or reprint.

The key should be written or preferably typewritten with a record ribbon on a heavy durable paper, closely spaced so as to put the key into as small a bulk as possible, and this should then hang near a drawer or filing case in which the bulletins are kept. Our key is kept on a short roller, commonly used for window shades.

To illustrate the use of this key we will suppose that it is desired to file away a copy of the "Monthly List of Publications," issued by the Division of Publications of the United States Department of Agriculture. This, by a glance at the table, will be easily located as 0.2.

Bulletin No. 77, "Bovine Tuberculosis," recently issued by Dr. Van Es, upon a moment's glance through the contents is seen to belong to 1.41.

Bulletin No. 99, Bureau of Animal Industry, "The Danger from Tubercle Bacilli in the Environment of Tuberculous Cattle," is filed in a moment as 1.43.

Owing to the continued uncertainty concerning hog cholera, swine plague, and possibly another disease not yet named, we classify all of these as 1.3.

Bulletins on the sanitary production of milk like those recently issued by the Connecticut and Illinois stations, are located in a moment as 7.1.

All bulletins on the dissemination of tuberculosis, for instance, will be filed 1.43 and will necessarily stand side by side.

In looking for a given bulletin it is only necessary to remember something concerning its general subject matter, then refer to the key. The commonly used topics are very soon learned and may be located without looking at the key. It is an easy matter to decide on the classification number which should have been given to such a bulletin, and then one takes the proper drawer, according to number, and turns to the bulletin just as one would turn to a given page in a book.

This system is elastic and will not become overcrowded. It will be observed that there yet remains a considerable number of blanks which any user may fill in to suit his own matter.

I have found the item, "Mixed and miscellaneous," in any classification work to be very convenient, although free use of this subdivision is opposed by library experts. As soon as one accumulates a considerable number of bulletins or reprints on a given subject which has been classified as "miscellaneous," it is then an easy matter to put these together into a new subgroup of equal grade.

We use a Globe-Wernicke vertical filing case, the drawers of which measure in the clear about 12 inches wide and about 22 inches long with adjustable support. This nicely accommodates two rows of bulletins side by side, the bulletins being in a vertical position. The classification number thus comes into easy view.

As will be seen by referring to this key the writer has been accumulating only bulletins which have some close relation to veterinary work, and is inclined to recommend this system to experiment station veterinarians who receive a very large number of bulletins on all sorts of subjects.

Bulletins on miscellaneous subjects not closely related to veterinary work are or should be on file and indexed in the station or agricultural college library, and it requires much less labor to go to the general library for these than to keep and file all station bulletins and reprints which one receives.

The same general system of classification in filing would do equally well for bulletins or pamphlets on any line of subjects, or, in fact, for a general collection of bulletins on all possible subjects. All that is necessary in the way of a container is a Globe-Wernicke or Macey or any filing case of suitable dimensions, or a drawer or even an empty box of suitable width and depth.

The most elaborate filing case after all only serves the purpose of a simple box, the bulletins being closely packed standing on end.

If one has good office or library help an accompanying card index is very useful but is not at all necessary. We have all of our bulletin cards indexed and filed by this system, but I would not urge the card indexing except to one who has a rather large collection.

We have a similar but smaller and simpler key for filing negatives, lantern slides and photo prints by which the latter are easily filed away and as easily found when needed. This will be gladly given to anyone who needs, but is without, a satisfactory system of filing this material. If there are any considerable number of requests for this it may be sent in for publication in the REVIEW.

OHIO STATE COLLEGE RECEIVES RECOGNITION.—The Ohio Legislature which recently adjourned appropriated \$91,500 to the College of Veterinary Medicine of the Ohio State University. This money will be devoted to the erection of a clinical building, which will be placed on the University Campus near the Veterinary Laboratory building, completed four years ago, and the magnificent new buildings (three in number) of the Department of Animal Husbandry.

The entire appropriation will be immediately available and should be sufficient to provide the best building of its kind in the country. Every effort will be made to have it compare favorably with similar structures in the best European schools. The plans are now receiving very careful consideration and further description will appear later in the columns of this journal.

COUNTRY SLAUGHTER HOUSE CONDITIONS IN IOWA.*

By DR. T. A. SHIPLEY, CEDAR RAPIDS, IOWA.

For the greater part of the time during the last three months, under instructions from the Chief of the Bureau of Animal Industry, I have been engaged in investigating sanitary conditions of establishments in Eastern Iowa doing an interstate business in uninspected meat and meat food products, under authority of exemption certificates issued by the Chief of the Bureau in accordance with the Federal law governing this business. The parties operating under these certificates are, for the most part, local retail butchers killing their own animals in their own slaughter houses, or in the open, and preparing their meat and meat food products in their own places of business without any inspection whatever. The Federal laws do not provide for any inspection of this product, neither does our State law provide for such inspection; however, the regulations governing the meat inspection of the United States Department of Agriculture prohibit the entrance into interstate commerce of *any* meat of meat food products which have been prepared under unsanitary conditions. The interstate business of these establishments is limited, and is confined almost wholly to the shipment of veal calf carcasses, one county in Iowa alone furnishing an estimated number of over six thousand annually. This is, however, exceptional and nowhere else in Iowa does this business reach anywhere near this number. There are some shipments made of uninspected cured and prepared meats made, but they are so few and small that they need not be considered. The balance of the product of these and all other local butchers is consumed by the citizens of Iowa, served up on your table and mine unless we are very particular to see that the meat we buy is cut from carcasses or parts bearing the marks "U. S. Inspected and Passed." There are no statistics available for estimating the amount of this product or

*A paper read before the Iowa State Veterinary Medical Association.

any way of estimating even the number of local butchers in this State, let alone the product handled by what is usually known as "scalpers" and the amount killed by the farmer for themselves or for sale in their local markets. They do not know themselves, for in interviewing over a hundred and fifty different establishments of this character, not one of them had an accurate book account or memorandum of the number of the animals slaughtered during the last year, but an estimate based on their best judgment of over one hundred of these establishments which were operating slaughter houses and markets in the State of Iowa it developed that the average was four and a small fraction of cattle and the same number of hogs per week. After carefully considering the matter, I think it likely that there would be an average of more than one slaughter house and market for every post-office in Iowa. There are in Iowa over 1,500 post-offices. Figuring the average of each market at the above estimate per week for two hundred even each of cattle and hogs, would make something like 300,000 of each cattle and hogs consumed by the citizens of Iowa without any inspection, and calculating the average condemnation for tuberculosis alone that hold in the Federal inspection in this State at three-quarters of one per cent., about the average in Cedar Rapids, it would figure out that the citizens of Iowa are eating every year about 2,250 tuberculosis cattle carcasses and 2,250 tuberculosis hog carcasses. Besides that number we have furnished probably a vastly larger number to the packers who have Federal inspection and what the farmers have eaten of their own killing, and the visibly diseased parts have been fed to the hog in raw state.

Is it any wonder that our State Veterinary Surgeon and the State Board of Agriculture is taking up an investigation of the amount of tuberculosis among the animals in Iowa?

But let us get back to the conditions under which these animals are slaughtered to the slaughter house itself. There are, in fact, many different conditions in and around these establishments and yet after viewing a hundred or so of them the vast majority of them look so much alike that to give you a descrip-

tion of one or two of the worst and one or two of the best, you could strike a general average that will represent conditions as they are and as they should be.

On the bank of a little stream that winds its course through some of the richest farms in Iowa to finally find its way into the Mississippi stands an old rough board shack that is in danger of toppling over on account of the hogs having undermined its supports. It stands in the midst of the feed lot in which there is fed some fifty head of cattle and the same number of hogs. It is innocent of paint or whitewash, either inside or out. The lot is littered with much offal, including the skeletons of two or three horses and the same number of cows whose softer parts have been devoured more or less completely by the hogs, crows and rats. At least, they were all in evidence at the time of my visit. It is fair to say there were no flies on the premises at the time of inspection, in December. Looking under this shack—it does not deserve the name of “slaughter house”—disclosed a leaky floor from which bloody icicles projected and a quantity of frozen blood and water under it. Let us go inside this structure. The ventilation is ample, being provided with numerous cracks of varying widths between the rough weather boards. In one corner is a pile of hides curing. In the other corner is the bricked-up kettle for heating water for scalding hogs, around which is a dirty, rough board bench on which the hair is removed, much of which was in evidence on the floor. The water for use in this institution, and for the stock around it, is obtained from the above-mentioned stream whose banks show evidence of his hogship having enjoyed many pleasant hours during the previous summer in its moisture, and I am sure the litter on the banks did not add to its purity, although it was being used for the washing of the carcasses and equipment when they were washed.

One dirty bucket and one dirty broom, nearly worn out, were all the visible equipment for use in cleaning the place. The proprietor assured me they gave it a thorough cleaning every time they scalded hogs, because they had plenty of hot water left over

after they had used it in scalding the hogs. Indeed, the middle of the floor did show some evidence of having been so treated, but the area beyond the middle and the walls, hooks and shelves for holding the livers, heads and other parts, it was surely innocent of any such treatment. The proprietor assured me that these carcasses did not hang in this structure to cool, but were hauled to their market immediately after slaughter and inquiry developed the fact that they had a vehicle which they used to transport the live animals from where they were bought to the place of slaughter, there killed and quartered, the litter brushed out of the vehicle and some dirty burlap stretched along the sides, the quarters hung on movable hooks and the carcass thus immediately transported to their market. Their market conditions are somewhat better, but on looking into the cooler some tainted meats and meat scraps are found, and the back room where the sausage is made and the lard rendered has a general filthy appearance of floors, walls and equipment. One of the proprietors had learned his trade in one of the large packing houses years ago, and assured me that their conditions were better than they were there at that time, and I was not in a position to dispute him. He had not, however, heard of the changes wrought along sanitary lines since the publication of the famous "jungle book."

On the banks of the Mississippi, within the limits of one of the oldest towns in Iowa, stands an old stone building, that I am told by the son served his father fifty years ago as a slaughter house and is still serving the sons as a place to kill their animals that supply the meat to the citizens of this town. One might well imagine from the litter and offal and the general appearance of the place, that no attempt, by human agency, had been made in all these years to clean up these premises. It is true that the high water of this mighty stream does sometimes remove a part of what the hogs and the crows and the rats have left undevoured. The water for use in this time-honored institution is dipped up from the banks of this stream at the lower edge of the premises. Inside the building like conditions are in evidence, as in the last

establishment mentioned. The floor is of boards, what there is left of it, and a coating of filth, in many places thicker than the original boards, covers the remaining part of the floor. The smells that issue from this place during the warm season must be more penetrating than agreeable. There is also a lack of clean tight floors in their rooms where the sausage is made and lard rendered, and the market conditions are not very clean or desirable. While the two mentioned establishments are, from a sanitary point of view, among the worst I have seen in Eastern Iowa, they are run by citizens that are of good repute in their communities. Indeed, as a class the butchers are in the main as desirable a lot of fellows as you will meet in any line of business. They are, perhaps, victims of circumstances, competition is close, and they have to do as their neighbors do or get out of business. Moreover, they are perhaps along the same lines the victims of their dairyman and baker with whom they do business, to a greater or less extent, and even of the farmer who knowingly, or unknowingly, sells them diseased animals. It will cost a little more all around to have clean meat, milk and bread, and there is the rub.

In contrast to the above conditions I want to call your attention to an establishment about two miles from a city of some ten or fifteen thousand inhabitants. This establishment slaughters on an average of twenty cattle and fifty hogs per week. Part of these animals are slaughtered on a commission basis for the retail butchers of the city at so much per head, the balance are killed and sold direct to the retail markets of this and neighboring towns. This establishment has an abundant supply of good clean water, hot and cold, good dry chill rooms, good meat curing cellar, and a tank room for offal away from the rest of the rooms, and edible products are all handled in a decently clean and sanitary manner, and, barring a few technical discrepancies, this establishment would meet the requirements of the Federal meat inspection regulations as regards sanitation.

There is also in Iowa a co-operative community of some eighteen hundred inhabitants in the seven villages comprising the

colony, and each village has its own slaughtering, meat curing and market establishment situated right in the village and in some instances right up against the dwellings, and not in the usual remote, out-of-the-way places that country slaughter houses are usually found. These seven establishments, equipment and premises are the cleanest of the kind that I know of anywhere. There is provision made for an abundance of hot and cold water, no offal is fed to the hogs on the premises, but, on the contrary, what cannot be rendered in soap grease is hauled off and buried. The butcher in charge of each of these places is of and for the community, and is answerable to the community for its governing body for the conditions of his place, and right well he discharges his duty. Between these two extremes of examples given are all grades ranging up and down. Some butchers have no slaughter houses, but kill in the open, which is preferable, from a sanitary point of view, to the dirty slaughter house, and I have even seen slaughtering operations being carried on in cow stables, pig pens and chicken houses. It would seem that we are in need of devising some way of regulating this business. The Federal law does not apply to an establishment unless some part of its product is offered for transportation in interstate or foreign commerce.

In view of the fact that several municipalities in this State have lately passed ordinances for the control of municipal meat and milk inspection and have appointed graduate veterinarians to fill these responsible positions, and that more municipalities are likely to do the same in the near future, it behooves us, as veterinarians, to study his problems so as to be able to take hold of the situation in a practical way for this work will finally devolve upon the veterinarian.

The first and most important problem in municipal meat inspection will be a sanitary slaughter house. If the different butchers and meat dealers of the larger cities cannot be persuaded to unite and build a common slaughter house for the use of all and hire a janitor to do the killing and keep it clean, the municipality will probably have to build it and charge each indi-

vidual so much per head for his accommodation. In the smaller towns, a suitable sanitary building can be constructed at a very little additional cost above what the present insanitary board structures do cost.

Let us inquire briefly regarding some of the features of the decent slaughter houses. First, as to its location: It need not be far from the business portion of the town if properly conducted. It should be on a site easily drained and connected with a sanitary sewer, if possible; if not, some satisfactory arrangements should be made for drainage. Second, there should be an ample supply of good wholesome water and provisions made for heating as much of it as is necessary to do the washing and cleaning of the structure. Third, regarding its construction I want to quote from an address of Dr. W. A. Evans, City Health Commissioner of Chicago, on "the public health and modern methods of buildings," in which he says: "I believe that the general use of concrete has done much to preserve human health and will do more in the future as its use increases. Concrete is one of the most important sanitary agents yet devised."

I believe it to be the most suitable agent to use in the construction of the ordinary small slaughter house, and suitable everywhere except for floors, over which there is to be much heavy trucking done. It is easier cleaned than ordinary boards, it is cooler in the summer and easier to keep warm in the winter. Concrete floors do not leak and are rat proof, and it is as cheap as good lumber. Fourth, regarding size and cost and number of rooms and equipment, that will depend upon the amount of business to be done. If tanking of offal is to be done on the premises a separate room should be provided for this and for the hides and other inedible products. Nothing but edible products should be stored in any room used for such products, and ventilation should be provided for all rooms and compartments.

Fifth, somebody to keep this kind of a structure and premises clean answerable to somebody else who will see that he does his work thoroughly.

When these few little details have been provided for, the butcher and the inspector will be in a position to render satisfactory service and the consuming public will be benefited. It will probably add to the present cost of such product and the consumer must expect to pay his share of such added cost, which would not be much in comparison with the benefits derived. It is already paid for by appropriation of the people's money on such products as bear the marks of Federal inspection, and if it is necessary or important that our meat and meat food products should be inspected and passed before they are eligible to transportation in interstate or foreign commerce, it is surely necessary and important that they be so inspected and passed before they should be eligible for consumption by ourselves.

THERE were more than 14,000,000 horses in this country in 1897, but according to the figures for the past year there are 19,746,000 horses in the United States at the present time. This is a gain of nearly 40 per cent. in a decade.

THE TACTFUL VETERINARIAN.—A New Jersey veterinarian who does a large canine practice got himself into a serious predicament by his inability to remember names and people. One day while making out a receipt for a lady her name escaped him. Not wishing to appear so forgetful, and thinking to get a clue, he asked her whether she spelled her name with an e or i. The lady smilingly replied: "Why, doctor, my name is Hill."

MARTYRS OF SCIENCE.—Once more science has claimed its sacrifices. Two men lie dead at its altars, four are dying and another, the first stricken, and the accidental agent of death, has but just recovered after frightful suffering. The immolation has taken place at the University of Czernowitz, in Austria. Professor Luksch, while seeking an anti-toxin for the disease of glanders, broke a culture tube containing the glanders bacilli, cutting his arm severely. After a period of incubation signs of the disease began to appear, but Professor Luksch, by a series of operations, managed to save his life. Then came the real tragedy. It was discovered that the entire staff which had been working with him was similarly attacked. Two of its members have died and four are not expected to recover.—(*Cleveland Leader*.)

JOHNE'S DISEASE IN CATTLE.

By W. L. BEEBE, D. V. M., *Bacteriologist for Minnesota State Live Stock Sanitary Board.*

Paper read at the semi-annual meeting of the Minnesota State Veterinary Medical Association, 1908.

Johne and Fotheringham¹ in the year 1895 described a very peculiar case of enteritis in the cow. They were able to find many acid fast bacilli, which somewhat resembled the avian tubercle bacillus. It was not until 1904 when Markus² pointed out that this disease was of quite common occurrence in Holland that attention was again brought to this first case of Johne. Since then Lienaux and Van den Eeckhout³ have recognized it in Belgium, Borgeand⁴ in Switzerland, Bang⁵ in Denmark, and by M'Fadyean⁶ in England.

Pearson⁷ recently published a report upon this disease in Pennsylvania and Hovne⁸ has demonstrated its existence in Norway.

The purpose of this paper is to call attention to the fact that this disease exists in the northwest and particularly in Minnesota. Up to the present time, the writer has obtained material from two cases, and has held a careful post mortem examination upon another case. These three cases represent two outbreaks, one in Minnesota and the other in Wisconsin, the distance between the two farms being about 200 miles.

In May, 1907, material was obtained from the first case, but no publication was made of this at the time, as the specimen was sent in formalin, thus making it impossible to test the pathogenesis of the acid fast bacilli.

The owner described the Wisconsin outbreak as follows:

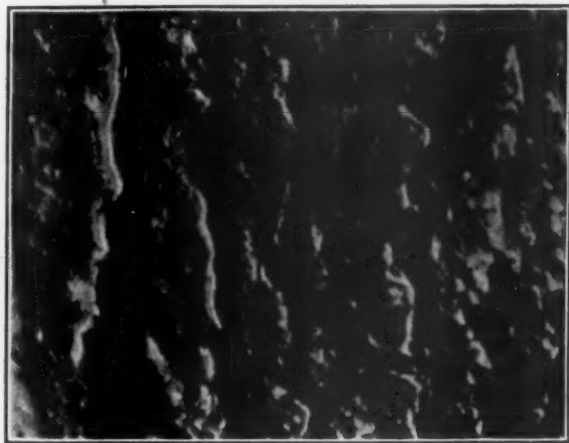
"The original cattle were brought from Albert Lea, Minn., about seven years ago. We have lost about eight from this disease since that time. Four of them were of the original imported cattle, three bred at this farm and one at Lake Geneva.

The mother of one of the home-bred cows that died of the disease also died with it here; the mothers of the other two young cows are still living in good health. We had a number of cattle from Lake Geneva and the rest are all sound. This is the only one we have lost. I cannot say that any of the animals that died were in especially close contact with those that died previously. Usually the disease will attack a cow shortly after calving, at least, it is at such a time it first becomes noticeable. The animals lost their appetite, the milk flow drops, the coat becomes hard and rough, and they scour badly. They linger along from six months to a year, becoming poorer all the time and finally die. As far as we know our bulls have never been affected, and we have had as many as fifteen mature bulls on the farm at once. We have from sixty to eighty head of cattle on the farm."

In May, 1907, a piece of small intestine about four inches square was received in a fruit jar of formalin solution. This specimen was sent from Wisconsin to Prof. Haecker, of the Minnesota State Agricultural College, who referred the specimen to the writer. An accompanying communication stated that the animal from which this specimen was taken had been suffering from a diarrhoea for several months, and that as the owner had lost several cattle from apparently the same disease, he desired to have a bacteriological examination made. Smear preparations were made from the mucosa and upon examination many acid fast bacteria, which in every way resembled the bacillus of Johne's disease, were found.

Case 11. The animal began to scour November 21, 1907, shortly after calving. She was isolated and the feed changed. The change in feed seemed to be beneficial as the scouring ceased and her health seemed somewhat improved, but by weighing her from time to time it was found that she was gradually losing flesh. About April 15, 1908, she began to scour again, and on April 23 she was so weak that she was unable to rise, and remained down until killed by the writer on April 25.

Post mortem: The carcass was very much emaciated. Upon opening the pleural cavity the cephalic lobes of both lungs showed a very marked emphysema. All other organs in this cavity were normal. Upon opening the abdominal cavity the liver presented few small areas of fatty degeneration in the right lobe. The spleen and kidneys were apparently normal. The mucosa of abomasum presented a few congested areas and also a few ulcers. The first third of the small intestine contained quite a portion that was of a redish brown color. The next third was thickened and puckered. The remainder of the small intestine and the



Photograph of mucous membrane of small intestine showing wrinkled appearance.
(Natural size.)

cæcum were apparently normal. A short portion of the colon was also thickened and puckered. The remainder of the intestine was normal.

Smear preparations were made from the ulcers in the abomasum, redish brown and rough portion of small intestine, and mesenteric lymph gland draining the rough portion of the small intestine and stained for acid fast bacilli. Many were found present in the smears from rough portion of the small intestine and also from the lymph glands.

Virulence: On April 29 two guinea pigs and a rabbit were inoculated subcutaneously with $1\frac{1}{2}$ c. c. each of bouillon suspension of mucosa from the roughened portion of the small intestine. May 9 one of the guinea pigs died. A careful examination post mortem did not reveal any lesions. The other guinea pig and the rabbit were killed July 7 by chloroforming, but no lesions were found.

Inoculations were made from the lymph glands that contained acid fast bacilli on Dorset's egg medium and incubated at 37 degrees C., but no growth took place.

Outbreak 2. This outbreak occurred in Chicago County, Minnesota. The owner gave the following history:

"These cattle were bought at Caledonia, Houston County, Minn., in December, 1898. The following year, in May, one of the cows had a bull calf, and in about two months this cow took sick. She died the following fall. The bull calf was raised and three cows were bred to him. This bull became ill and was killed after he had been sick for about nine months. Five calves from cows which had been served by the bull died from the same trouble. Four of these cattle were pure bred and three were grade Short-horns."

From the last animal to die several pieces of intestine and a piece of the abomasum were sent to the writer for bacteriological examination. Smear preparations were prepared from each portion and stained for acid fast bacilli. Upon microscopical examination many acid fast bacilli were found in the smears from the small intestine.

May 27, 1907, two guinea pigs and a rabbit were inoculated subcutaneously each with a piece of mucosa about the size of a pea. February 8 all were killed by chloroforming and examined post mortem.

The only abnormality found present in the guinea pigs was very marked emaciation. The rabbit was very fat and free from disease.

Etiology: There is very little room for doubt that this bacillus so abundantly found and so uniformly present is the

cause of the disease. Morphologically this organism closely resembles the tubercle bacillus. It is shorter and perhaps slightly thicker than the tubercle bacillus, usually measuring about $2m$ in length, but occasionally it reaches $4m$. There are also many that do not exceed $1m$ in length. The longer bacilli sometimes stain unevenly, giving a beaded appearance, while the shorter organisms take an even stain.

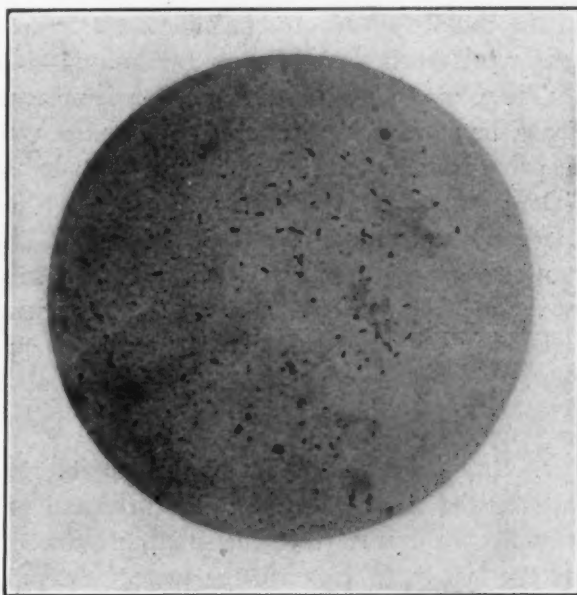


Photo-micrograph of scraping from mucous membrane of small intestine showing bacilli of Johne's disease. Preparation stained in carbolfuchsin decolorized in 25% sulphuric acid and counter-stained in Löffler's methylene blue. (X675.)

Several experimenters, including the writer, have been unable to infect rabbits and guinea pigs with it. Another characteristic which distinguishes it from the tubercle bacillus is the very trivial tissue changes produced in comparison to the abundant number present. So far all attempts to cultivate this organism on artificial media have proved futile. It is possible that in the future this can be accomplished, but at present it is certain that its cultural requirements are different from the tubercle bacillus.

Symptoms: The first symptoms of this disease are loss of flesh, an unthrifty appearance and inelastic skin, while the appetite remains good. The temperatures usually remain normal. Diarrhœa may soon set in, or, as is frequently the case, it may not make its appearance until after calving. The diarrhœa usually is persistent, although it is occasionally checked by changing the feed or by astringent treatment. The beneficial result of changing of feed is well illustrated in Case II. The feed was changed in the middle of November and the diarrhœa did not again appear until April 15, although the animal continued to lose flesh. There may be cases that recover from a mild form of this disease, but always when the symptoms are well marked the disease proves fatal, its duration being from two to fifteen months. The appetite usually remains fairly good for a short time, but it soon becomes impaired. For several days before death the animals usually remain in a semi-comatose condition. The symptoms of Johne's disease very closely resemble those produced by gastric parasites and a careful post mortem examination should always be made in order to make a differential diagnosis.

Lesions: Enteritis primarily of the small intestine and as a rule involving the large intestine is the principal pathological change. Usually the first third of the small intestine is free from disease and the last two-thirds are the seat of the most marked lesions. The mucous membrane is in many cases the only part affected, but the organisms may invade also the submucosa, thus resulting in a thickening of the bowel. When there is a thickening of the intestine the mucous membrane is wrinkled. If the intestine is cut open, these wrinkles do not disappear when traction is applied as is the case with a normal intestine. If a thickened intestine is held up to the light it is noticed that the thickening is very pronounced in places, resembling warty growths. Congestion of the bowel is rare. Ulcers are very seldom encountered. In Case II several ulcers were noticed in the abomasum, but no Johne's bacilli could be found present.

The lymphatic glands are usually somewhat enlarged. In some cases this is quite pronounced and then they usually contain an abnormally large amount of watery liquid, which oozes out when cut. When carefully examined no congestion or altered appearance can be detected, but if scrapings are made from them and stained they will be found to contain a very large number of bacilli of Johne's disease.

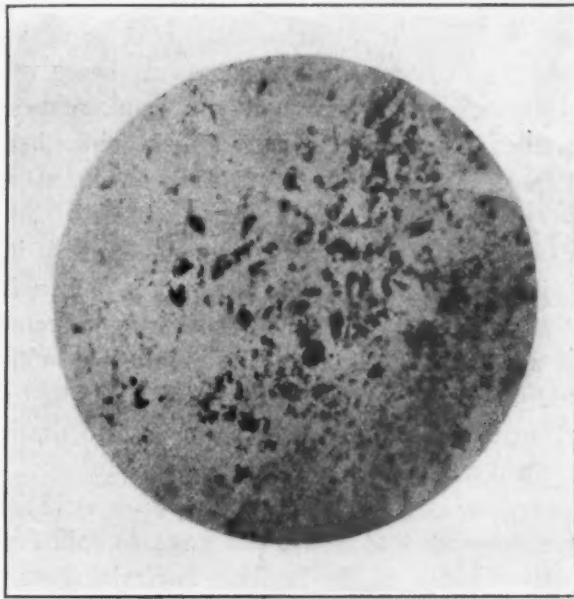


Photo-micrograph of section through mucosa of small intestine. The dark-stained areas are masses of bacilli, stained with carbolfuchsin decolorized with 25% sulphuric acid and counter-stained with Unna's methylene blue. (X170.)

A very characteristic feature of the disease is the slight tissue changes produced in comparison to the number of organisms present. Even when these organisms are present in immense numbers there is no necrosis or caseation as would be found in tuberculosis.

Both in the thickened portion of the intestine and in the mesenteric lymph glands, the lesions are very similar to tuberculosis before necrosis and caseation set in. Thus epitheloid

cells and a few typical giant cells are usually found present. In Case (II) many eisinophiles were present in the intestinal mucosa. It is a very interesting fact that the pathological changes are not sharply defined, the tissue seeming to have no power to resist their multiplications and dissemination. Bacilli are very frequently arranged in clumps. Many times these clumps are so large that small red areas can be seen in the preparation with a low magnification.

Prevention: This is a disease that must be regarded as infectious and also of grave importance. It being of a chronic nature and as far as we know always fatal, makes it a very serious matter if it once becomes established in a herd. In the writer's experience cattle begin to lose condition for several weeks or even months before the diarrhoea sets in, and probably during this period the specific organisms are present in the feces, thus exposing the other cattle to infection. When it is known that this disease exists in a herd all animals affected and also those that are even suspected of being affected with it should be isolated. The feces from these animals ought to be deeply buried or burned. It would also seem best to destroy all animals where a positive diagnosis has been made.

As this organism cannot be cultivated on artificial media, it seems quite probable that it will not grow in soil, feces, etc.

As to the vitality of the bacillus, bacteriologists are unable to say just how resistant it is to disinfectants, but owing to the fact that it probably does not produce spores, ordinary germicides will undoubtedly kill the organism.

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REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

SOME INTERESTING CASES.*

BY DR. W. H. WELCH, LEXINGTON, ILL.

The following cases are reported, not on account of any great educational value they may exhibit, but being out of the ordinary, were interesting to me.

February 27 last, I was called to attend a gelding that was observed to stand apart from the rest of the herd. Being forced to move he drags and carries the left front leg. An emphysematous swelling extends from throat-latch over shoulder down to knee. No external wound is visible, but there is a depression along trachea, between two rings of cartilage. Pressing on the superior ring air is observed to leave trachea and diffuse into surrounding cellular tissue. The injury is supposed to have resulted from animal running into post and rupturing the muscular tissue between cartilages. It is the writer's first experience with subcutaneous emphysema occurring through other than a direct external opening.

My second case of subcutaneous emphysema occurred April 23. Subject, a large cow, eight years old, prostrate with parturient paresis. She had calved the previous evening, was observed to be unsteady and staggered at 4 a. m. and was down at 9 a. m.

Arriving about 1 p. m., she was at once given a dose of sulphate strychnia, hypodermically, followed by the sterilized air treatment, and left small doses of nux vomica to be given every two hours until on her feet. Instructions were given to strip all the gas out of udder as soon as she arose, and if not lying up on her chest, or making efforts to rise by 8 o'clock, to call up on 'phone.

About 8 o'clock I was informed that the cow was up and seemed all right, but, says the German: "I can not get all the gas from under the skin out." Thinking, of course, that he referred to his inability to get all the gas out of the udder, I

* Report read before the Illinois State Veterinary Medical Association.

told him that it was immaterial, would do no harm, except that the milk secretion would not be so active until it was all out, and that what he didn't get out this time would come out at subsequent milkings.

Two days later I was once more summoned to attend her, as she had suffered a relapse, and was again prostrate. Upon arriving, imagine my surprise at finding the cellular tissue beneath skin over entire right hind quarter thoroughly permeated with air, and as tympanatic as a bass drum. This was what the German had referred to, as being unable to milk out. A careful examination was now made to see if there were not some external opening through which air might have gained entrance, but none is visible. The sterilized air treatment is once more applied, and as right front teat is inflated, the air is plainly seen to exude along subcutaneous abdominal vein, rounding upward along anterior border of udder, and diffuse beneath skin over entire right hind leg. By evening she was up again, and made an uneventful recovery. May 15 the farmer was in to settle his bill and stated that some of the gas was still there, but that the udder was, and had been all the time, in perfect condition.

Query—How did gas escape from udder?

I wish now to call attention to three cases presenting an anomalous condition of the testicles, of which I have found no mention in the ordinary text books at my command.

To begin with a little gross anatomy may not be out of order. Quoting from Strangeway: "The testicle is a glandular structure, divided into distinct lobules, which consist of minute convoluted tubes (*tubuli seminiferi*). These uniting to form larger tubes (*vasa recta*) enter the mediastinum, and terminate in a close network of tubules (the *rete testes*), which, passing to the superior extremity of mediastinum are formed into the *vasa efferentia*."

"The *vasa efferentia* consists of a number of small ducts. Straight at first, they shortly become convoluted, forming a series of conical masses (the *coni vasculosi*), from whose bases larger tubules issue, the whole forming the head or *globus major* of the *epididymus*."

"The *epididymus* is an elongated body, extending along the upper border of testicle, and consists of a head, or *globus major*, and a tail or *globus minor*."

Now, "*The head is situated anteriorly and is closely adherent to the testicle through the vasa efferentia.*"

Is this always true?

Three years ago I came across the first deviation from this rule that I had encountered, and it came near resulting in my amputating the epididymus and leaving the testicle in the abdominal cavity.

Subject was a two-year-old cryptorchid, from which one testicle had been previously removed. He was cast in the ordinary way, and entrance made through inguinal ring, where spermatic cord is easily recognized and brought to view. An elongated body is recognized as testicle structure, and being unable to find testicle, am suspicious that previous operator may have removed testicle proper, leaving epididymus. Being unable to find scar, however, continuous traction is resorted to and testicle is finally brought to surface. In this case both testicle and epididymus were in abdominal cavity, and the point which I wish to emphasize is the great distance between the two. Joined by what I suppose must be a prolongation of the vasa efferentia, the distance from epididymus and testicle proper is 18 inches.

The next case occurring under my observation was May 8 of the present year. Subject, a yearling draft colt, secured by twitch for the standing operation. Two supposed testicles are firmly grasped, and incisions are made on to each. Digital exploration on right side reveals epididymus, but hard traction fails to bring down testicle. Colt is now cast, and being still unable to bring testicle to surface a rectal examination is resorted to, when a large cystic testicle is recognized in abdominal cavity. Trocar is now used and contents of cyst allowed to escape through camela, after which removal is easily accomplished.

In this case epididymus is in scrotum, and cystic testicle is in abdominal cavity. Distance between epididymus and testicle, 14 inches.

My last case of this kind occurred May 23. Was called to examine a three-year-old horse of amorous disposition, which owner had purchased from his neighbor the past spring. Present owner had complained to seller that horse was a ridgling, but abundant proof was submitted by other neighbors who had witnessed the operation, that two testicles had been removed. An examination of scrotum reveals ends of cords on each side, while a rectal examination reveals a testicle in abdominal cavity on right side.

Horse is now cast and incision is made on right side. End of cord is grasped and followed to inguinal ring, when severe traction brings to view the hidden testicle. Another case of

epididymus in scrotum and testicle in abdominal cavity. The operator of the previous year had only removed the epididymus. Estimated distance from epididymus to testicle, 12 to 15 inches.

Here are three anomalous cases in one of which the epididymus and testicle are both in abdominal cavity, the extreme length of what I suppose we must term the vasa efferentia being 18 inches. In the other two, epididymus is in scrotum and testicle in abdominal cavity, and length of vasa efferentia 12 to 15 inches.

Is this condition at all common? Might not this condition account for many of the so-called removal of three testicles, of which we so often hear? Imagine the testicle being held high in inguinal region and epididymus in scrotum. The epididymus is removed and by the following year the testicle proper is descended, and the claim is made of three testicles.

CASES MET WITH IN PRACTICE.

BY DR. JAMES HARRISON, MAPLE RAPIDS, MICH.

Report read before the Michigan State Veterinary Medical Association.

My object in describing some of these cases is not that I expect to impart to you any new ideas or anything new in the treatment of them; but is more or less from a selfish motive in that I may possibly learn something myself. The first few cases I shall describe were fatal cases of parturition. I describe these from the fact that since 1890, up till the last two years, I have been extraordinarily successful in handling cases of parturition in all animals. In fact, so much so, that I began to get quite conceited and to think that the cases of parturition that I could not handle successfully were like hen's teeth, few and far between. I am frank to confess, however, at this time that my bump of self-conceit has, in the last two years, received several severe jolts. And I question very much whether or not it can be found now.

Case No. 1—On May 24, 1906, I was called to see a brown mare 12 years old, laboring, but unable to expel the foetus. On examination I found the head turned back on the shoulder and one front leg turned under. After a little careful manipulation and exercise of muscle I succeeded in delivering the mare of a good, healthy and strong live foal. A part of the afterbirth was

retained but was removed in a short time with a little hemorrhage. Washed the uterus well out with warm water. Gave half an ounce of chloral and two ounces of whiskey in a pint of water and left for the night. Called the next morning and found the mare and foal in good condition. I might, however, state here that the mare had to be raised with a sling for a week before and also this morning. Washed out the uterus thoroughly with an antiseptic solution. Gave more whiskey, and as the appetite was good, she was given the best of oats and a bran mash and at night oats and dry bran with good clean hay. Visited her again on the 26th. The vulva, which had been considerably swollen, had not diminished, as I expected, but had rather increased and there was a discharge of a yellowish watery substance, denoting septic infection. Animal was stiff and weak; pulse, small and rapid; temperature, 104 degrees. Washed out the uterus with a solution of permanganate of potash and carbolic acid, gave four ounces of whiskey and two-dram doses of quinine sulph. every four hours. Called the next morning, 27th, found the mare dead, having died about 4 o'clock that morning.

Case No. 2—On May 25th was called to see mare, 16 years old, unable to foal. This was about a mile and a half from case No. 1, and was treated at the same time and in the same way. Did not have a great deal of trouble in extracting foetus, but it was a breach presentation and foal dead. Mare died about 3.30 a. m. on the 27th.

Case No. 3—A heifer, two years old, very fat, and of the Durham breed. On inserting the hand nothing could be felt but the tail and buttocks, hocks being in front of the pelvic bones, foetus alive. Thinking to get the foetus alive and save both I proceeded to get small ropes on legs below hocks and draw the feet and legs up over the pelvic bones, which I succeeded in doing after a while, but in extracting the calf, which was a very large one, the vagina was lacerated clear across, close to the uterus. I did not think this was done while turning the legs and bringing them up over the pelvic bones, but it is possible. Seeing that nothing could be done I ordered her destruction, which was done, and on post mortem the laceration found as described.

Case No. 4—On June 27, 1907, was called to see cow, which the owner explained had not been feeling right for a month or more, had not been sick but showed signs of being in pain; at times would strain as though about to calve although her time

was not up for two months yet. After straining for a while she would give up and go and feed and be apparently all right for two or three days, and then the attack would come on again.

On inserting my hand I discovered a small portion of placenta and on following it up I could gain no headway and could find no way of getting my hand into the uterus; I at once concluded that she had a complete torsion of the uterus. I then tried to figure out which way the uterus was twisted. I could feel no foetus and it was difficult to find just which way it was twisted. I finally made up my mind that I had the right way of it and had assistants roll her over her back and over her feet while I with inserted hand tried to hold the uterus stationary. We had the cow standing nearly on her head, on her back and every way we could think of, but to no avail, and I had not located the foetus yet. Well, we worked for about five hours, were all tired out and had accomplished nothing, and I recommended her destruction. The owner did not consent at that time and I left. The owner destroyed her the next day and on making post mortem found a complete twist in the neck of the uterus which was lacerated anteriorly and he found the foetus in front of the rumen or paunch, and he said from the appearance of it he would judge it had been dead for a month. Perhaps, however, it had been dead for a week.

Case No. 5—A bay mare, 8 years old, weighing 1,300 pounds, was brought to my barn, the owner having drawn a load of wood to town and was starting for home when the mare was taken with colic, which developed into acute indigestion.

I first gave her 8 drams aloes, $\frac{1}{2}$ dram calomel, $\frac{1}{2}$ ounce soda bicarb., $\frac{1}{2}$ ounce gentian in a quart of water followed by $\frac{1}{2}$ ounce chloral hydrate in a pint of water. Pains not abating in one hour I gave $2\frac{1}{2}$ grains morphia sulph., hypodermically, and in one hour, 1 grain physotrig, $\frac{1}{2}$ grain pilocarpine. Got no response from esserine and pilocarp; in an hour gave $\frac{1}{2}$ ounce chloral in pint of water. But I seemed to be unable to control the spasms of pain. Two hours after giving first dose of esserine and pilocarp I repeated the dose, when she quieted down a little. Breathing was quite heavy and pulse full and bounding; temperature, 102 degrees.

I then gave small doses of candibis indica every hour. About eight hours after being taken she became very stiff and unable to use the right hind leg and I suspected azoturia, drew her water with a catheter, which was of a dark coffee color, charac-

teristic of that disease. After which she appeared easier and did not require anything more to counteract the pain. In the course of time the physic acted and she made an uneventful recovery.

Question—Was the azoturia brought on by the animal's exertions during paroxysms of pain?

Case No. 6—December 13, 1907, same mare was brought to my barn under the same conditions, being over two years after first attack; the only exception being that she was 8½ months along with foal. I treated her in very much the same way as in first attack, but having just read Dr. W. H. Weathers' paper on arecoline compared with esserine, in Park-Davis & Co.'s veterinary notes, I wished I had some arecoline instead of esserine, but the wish did not materialize, and in the course of time the mare again made an uneventful recovery. The mare, however, on this occasion did not develop any signs of azoturia.

A DIAGNOSIS REQUESTED.

By DR. C. B. KERN, BELOIT, KANSAS.

Reported to the Kansas State Veterinary Medical Association.

The manner in which the subject of my paper is stated on the program may have misled some of you to expect a description of a new disease, with etiology and pathology fully gone into. Such of you will undoubtedly be disappointed for the substance of my paper will deal merely with the report of two cases which presented extraordinary and unusual symptoms, the causes and nature of which have led to no little speculation on my part without satisfactorily solving the problem. It is with the hope of gaining the desired information that I draw your attention to the following two cases.

Case No. 1.—Subject, a gray mare, 15 years of age, in good condition, with colt two weeks old by her side, mare having been rebred the ninth day. She had been running on green wheat pasture with good water supply from deep well, receiving an occasional feed of corn when being driven, but had not been hitched for several days previous to the attack. At 7 a. m. on May 29 last, after eating a feed of corn, owner noticed pronounced salivation and on moving her noticed her to be somewhat stiff in her action. This symptom gradually became aggravated until noon, when I was called. On account of the

distance and previous engagements I was unable to reach the spot until 4 p. m., when I found her in a pitiful condition. The entire system of voluntary muscles seemed to be in a state of tonic spasm. On attempting to lead her she would almost fall down, it being next to impossible to move her. Respirations were much accelerated and difficult on account of spasm of the respiratory muscles. Pulse ranged from 60 to 90 according to whether she was excited or not. Excitement causing aggravation of all the symptoms. Temperature, 103; body bathed with perspiration. Upon attempting to drench the mare with a solution of chloral hydrate and water she fell to the ground where we finished the drench. She lay stretched out struggling violently at times and finally, with our assistance, regained her feet with difficulty. Also gave five grains morphine, hypodermically, followed by inhalations of chloroform. We decided that drenching was too exciting and dangerous to both animal and attendants, so prepared a mixture of equal parts of chloral hydrate and camphor gum, which was given intra-tracheally every one to three hours. This, with the subsequent injection of morphia and inhalations of chloroform, constituted the medicinal treatment. Efforts were made to keep the animal as quiet and comfortable as possible. Gradually toward midnight the spasm began to abate, but did not leave her entirely until morning, when she could move with comparative ease but was left much prostrated.

After-treatment consisted of stimulants and tonics under which she gradually regained her normal strength and appetite in a few days.

Case No. 2.—Roan mare in good condition, 9 years old, with colt six weeks old at her side, having been rebred the ninth day, and was again in foal as proved by the post mortem. This mare had been fed on alfalfa and corn and watered from deep well. She had been worked every day for a week. Owner drove her to neighboring town about 10 miles distant with load. On returning, when about two-thirds distance home, mare suddenly became excited and wanted to go. Owner stated that he was powerless to hold her. Suddenly the animal falls but rises again and still pushes ahead when she falls a second time. This time she has more difficulty in rising and upon doing so, is noticed by the owner for the first time to be stiff and could only move with difficulty. The owner at once telephoned for me, about 4 p. m., and by the time I reached his place, about

12 miles out, he had succeeded in getting her home. I found the mare presenting exactly the same symptoms as described in previous case. Having had good results with the line of treatment employed in case No. 1, I immediately proceeded to carry it out in case No. 2.

Having other cases pressing me for attention I left my assistant in charge of this case, after administering a dose of each chloral and morphine. The treatment outlined in first case was diligently carried out in this one, but with negative results, the animal gradually growing worse. She got down and in her struggles to regain her feet, which was impossible, she nearly demolished the barn and made it almost impossible to administer the treatment, and in a convulsive paroxysm she died shortly after midnight. Upon post mortem a ruptured diaphragm was disclosed. If any other lesions existed they were overlooked by the assistant in charge.

Projection of the membrana nictitans was absent in both of the cases. No history of previous injury existed, The absence of which and the comparatively short period during which case No. 1 recovered completely and the suddenness of attack in case No. 2 entirely preclude the possibility of tetanus having existed.

The non-intermittent character of the spasms in both cases would lead one to believe it could not have been strychnine poisoning, even in the absence of chemical analysis.

MANGE AND ITS TREATMENT.*

By DR. F. A. ILSTRUP, Willmar, Minn.

I am not going into the minute details of this subject, as I know you are all more or less familiar with the disease. As for myself, I have had quite a few cases of mange and an abundance of eczema the last three or four years, but best of all is the ap-

* Read before the Minnesota State Veterinary Medical Association.

praisal I have had for my treatment, "the great stuff," as the farmer calls it, which I will explain later.

Mange, itch or scab in the lower animals is a skin disease of local nature due to an insect which induces irritation, ulceration, suppuration and incrustation on the surface of the body generally. As I understand there are three principal classes of mange, but there are many sub-classes to these again.

First—In the horse—*Sarcoptic scabiei* are the worst, as they work under the skin or in the body of the true skin and also get to the root of the hair.

Second—In the ox—*Symbiotis bovis* is the most serious.

Third—In the sheep—*Psoroptic* mange, or, as known among the sheepmen, scabies.

Fourth—In the hog—*Sarcoptic squamiferous*.

Fifth—In the dog—*Sarcoptic* mange is the most important.

Mange is a contagious disease, never originating spontaneously and requiring for its development the passage of the parasites or the egg from the diseased to the healthy animals. All sarcoptics may live for an indefinite period upon man's skin, but the psoroptic and symbiotis die very rapidly.

The horse may contract sarcoptic mange from the sheep, pig, dog and cat. The ox takes the sarcoptic from the horse, sheep, cat and goat. The sheep contracts sarcoptic mange from the goat. The pig contracts sarcoptic mange from the goat. The dog takes the sarcoptics of mange from the pig, cat, sheep and goat.

From these summaries, we see that sarcoptic mange is especially transmissible from one species to the other. Contamination takes place either by direct contact or at hitching posts, barns and in pastures, and by intermediary agents as blankets, harnesses, grooming implements and also the grooms taking care of the diseased animals.

The symptoms of mange in the horse is first a vesicular eruption and intense itching, and, if examined by the hand, small, hard pimples may be felt which if looked at close will be found to consist of small scabs easily removed, exposing round, small, moist surfaces about an eighth of an inch in diameter, these surfaces allowing serous contents to escape which dries and forms a scab, and, at the more advanced period, large surfaces become destitute of hair. The first favorite seat is on the side of the

neck and withers, hence they will extend over the surface of the body. At the later period the skin becomes thickened, wrinkled and fissured.

The symptoms of the ox are similar to that of the horse and are generally observed on the neck and withers and root of the tail, and soon extends to the whole body, except the limbs, causing severe itching, falling off of the hair, thickening, hardening and corrugation of the skin. The animal rubs and licks itself, causing abrasion of the skin from which an exudate is poured out which dries and forms a crust.

The symptoms of the sheep at first is an intense itching, attempts being made to allay by rubbing which gives the animal a ragged appearance, tufts of wool being pulled out, leaving white patches. On these surfaces small pimples of a yellowish red color, will be observed and on the surface of these pimples a small blister or vesicle soon forms, its contents being discharged which forms a crust or scab. The wool is easily detached along with this crust, and the underlaying skin is thickened, wrinkled, inflamed and scabby. The parts first attacked are the back, sides and shoulders but rarely the lower part of the body.

The symptoms of the dog—At the beginning we detect spots, especially on the surface where the skin is bare, which are similar to flea bites and are located on the inner aspects of the legs and abdominal region. The friction and rubbing produces a diffused redness of the skin. Where these bites are located small pimples develop which, transformed into vesicles in considerable numbers, spread all over the surface of the body. In the majority of cases they are emptied out, producing a moist surface, and in others dry scabs are observed; frequently these vesicles pass into a pustilous state which dries rapidly and forms yellowish gray scabs, which are detached and the hair falls out, forming bare blotches. The skin itself becomes thickened, wrinkled and cracked. The animal is constantly scratching itself.

The symptoms in the pig are generally first noticed about the head, especially the fossa beneath the eye, the eyelids, cheeks and auricular region; thence it extends up the neck and shoulders, finally the whole surface of the body. The affected parts are covered with an abundant epidermis desquamation and also thick scabs, the color of which varies from a grayish white to silver white. The skin is thick, stiff, hard and wrinkled, all the bristle become loose and fall out.

As to the treatment of this disease, I have had charming results with common machine oil, or "engen," as the hardware men call it. The way I have done: I put it up in quart bottles; in addition to the oil, I put about 4 or 5 ounces of sulphur, with 2 or 3 drams carbo ligni, so as to disguise the color of the sulphur, and have it pulverized as fine as possible, and to change the smell of the oil use 3 or 4 drams of either oil picis, crude carbolic acid or something of that nature. After shaking up this mixture, I apply it freely the first time all over the affected parts, then rub it in well; after this is done leave the animal alone for four or five days or even longer. By this time you will find your patient covered with loose epidermic desquamation scab and loose hair which can easily be removed with a stiff brush.

In bad cases you may have to repeat the same process the second time. After this being done, you will find the skin nice and soft and new hair starting to grow. Then, if there are any places where it appears again just apply over these places until cured, but never use any water as it seems to make it worse.

How I happened to discover the use of the oil was: I traded for a horse that was affected with eczema along the sides of his neck and shoulders. He kept on rubbing until he had drawn blood. Being hot weather, the flies troubled him, so I thought I would apply a little of this oil to keep them off. To my surprise, he quit rubbing nearly right away, so I decided to try it on other cases.

First Case.—I had a pair of bay geldings weighing about 3,200 pounds which had been affected for more than two years with mange. My competitor treated them for about a year, using everything he could think of without any result. Then, after that I got the honor. I tried every imaginable thing for about six months with but very little result, from soaking, washing, scrubbing, applying liniments, ointments, kerosene and gasoline, even a quart of 20 per cent. of creosote, vasogen compound, and all the elbow grease the farmer had, with but little result. It was about the middle part of August, 1905, when I commenced with my new treatment, and within six weeks you would not have known that they were the same horses. The new hair that came out was much darker.

The same party kept these horses until the following spring without any sign of reappearing. Sometime in April they were sold and shipped to Canada, so I lost track of them.

Second Case was a two-year-old bronco which was affected a little when taken from the herd, some time about the 1st of September, 1906. Nothing was done to this fellow until the following spring, at which time he was poor and weak, and his skin was thick and wrinkled and looked more like that of a rhinoceros than that of a colt. The owner got a quart bottle of the oil, went home with the intention to either kill or cure, so he soaked him from the tip of his nose to his hoofs. He used a whole quart at once, then he turned him in the pasture. The colt went to the farthest end of the pasture and laid down and stayed there until the evening of the second day; then he came up to the barn with the other colts and in a few days he had hardly any hair left on his body. The new hair came out and he gained right away, never showing any signs since.

Third Case.—A party was fattening some steers and two or three of them began rubbing and licking themselves; they hardly had time to eat. Of course, I never saw the steers, so cannot say what kind of an itch they had, but whatever it was the oil put a stop to it nearly right away.

Fourth Case was a sow with her seven little pigs, which were all affected. They would be up by the trough eating and every little while they would run to the fence and rub themselves, then back to the trough again. That was the way they would keep on all the time and it nearly wore them out. The owner got a bottle of this oil and applied it only once, and that was the last of the disease on them. They peeled off just like on the horses. During the year 1906 I sold 32 quarts of the oil without a solitary kick, so you might know I could give a few more cases as the above, but this will show you what the oil will do. I am sorry I never had the chance to try it on the dog and sheep, but I am convinced it would work on the dog and sheep also, if it were clipped real close so we could get at the diseased parts.

THE celebrated picture, "The Village Blacksmith," by the French artist, H. D. Marean, is now valued at \$60,000.

THE trustees of the Pennsylvania Veterinary Medical Association have decided that the semi-annual meeting of this association shall be held on the morning of September 8, the first day of the American meeting. In this way they feel that they will have a larger gathering of local men than if they should wait until the usual time, which is a week later.

ABSTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

A CASE OF MESENTERIC ABSCESS DIRECTLY FOLLOWING STRANGLES AND TERMINATING WITH RUPTURE OF THE STOMACH [*Capt. G. P. Knott, A. V. C.*].—Six-year-old mare suffering with strangles. Has maxillary abscesses containing characteristic discharge. The animal remains dull, off her food now and then, with little colicky pains. Her most favorite position is to be fully stretched out as in the act of micturition. Mesenteric abscess is diagnosed and various treatments prescribed. Soon the animal becomes worse, is much emaciated. Symptoms are more marked. Complete anorexia, violent colics. When lying down the forelegs are kept extended in front of the body. She is groaning, has eructations. When standing the forelegs are kept well apart. Pulse and respiration remained normal. Temperature varied between 102 and 106 Far. Ruptured stomach is diagnosed. Death takes place. Post mortem. Thoracic organs normal, abdomen contains three gallons of fluid. Peritoneum of large and floating colons inflamed in patches. Sternal flexure of large colon adherent to ensiform cartilage. Third part of the colon adherent to abdominal wall. Stomach ruptured six inches in length. Mucous of the small intestines inflamed. Large abscess in the colic mesentery. It weighed 10 pounds, its walls are 3 inches thick and it contains about half a pint of pus with a stinking odor. Several colic mesenteric glands are enlarged. Abscesses were found in the pelvis of both kidneys. Other organs normal.—(*Veterinary Journal.*)

INGUINAL HERNIA OF A GRAVID UTERUS IN A BITCH [*Prof. G. H. Wooldridge, F. R. C. V. S.*].—Wire-haired, black and tan bitch has on the right side a hernia of one horn of the uterus containing a single large-sized foetus. She was seven weeks gone in pregnancy. As she is to be operated, the owner states that he does not wish her to breed again; it was decided to remove the entire uterus and, if it could be done, through one in-

cision. After all necessary precautions, the hernial sac was opened quite freely to allow the passage of the distended uterine horn. This was isolated by ligatures first and removed. The left horn was then secured and as it did not contain any foetus was easily brought out drawing the uterus which was then ligated and removed. Some large veins had to be secured. A large lot of omentum had also to be excised. The peritoneal layer of the hernial sac was separated from the outer layer, ligated as far as possible near the external inguinal ring and cut; the stump being returned in the abdomen. The external ring was sutured with silk, the skin also, and sealed with flexible collodion and a little iodoform. In fifteen days the slut was well without having missed a single meal from the time she had been operated.—(*Veterinary Journal*.)

RETENTION OF URINE IN A CAT BY SPONTANEOUS LIGATURE OF THE PENIS WITH FUR [*Prof. G. H. Wooldridge, F. R. C. V. S.*].—Persian tom cat, 4 months, has abdominal pains since several days, smelt offensively and is suspected to not pass urine. He had anxious expression of countenance, and pupils are dilated. A much distended bladder is felt and punctured through the abdominal walls: Urine appeared normal. No foreign body or calculus found. Sent home. He is again the next day in the same condition. Bladder is taped a second time. Examining the perineum, slight purulent discharge is seen oozing from the sheath and a fine hair protruding. This is drawn out and round the penis are observed several coils of fur firmly entwined, forming ligature. This is removed and the penis badly lacerated is seen, suggesting possible subsequent stricture. Two days after the bladder is still distended, but by pressure from the abdominal wall a few drops of blood-stained urine are squeezed out. Puncture had to be resorted to several times and after a while the cat was all right.—(*Veterinary Journal*.)

PROLAPSUS OF INTUSSUSCEPTED COLON IN A PUPPY [*By the Same*].—Three months mongrel pupy has prolapsus of intestines. Thought it was the rectum. The trouble is reduced. Finger introduced in the rectum found it ballooned and the returned body could be felt. Manipulations through the abdominal walls revealed the presence of a sausage-like body similar to that found in intussusception. Dog is anesthetised, abdomen opened, no intussusception is found and the abdomen is closed. Two days later intussusception reappears. It is protruding some. Again it is reduced and the anus is closed with loose suture. On

the 5th day after laparotomy, the dog is taken home. He is returned on the ninth day. No intussusception is present, and the anal suture is taken off. The next day the trouble returns. The suture is inserted again. The dog is then kept by himself in a kennel receiving bread and milk diet and two drachms of petroleum emulsion three times a day. No more sausage-like body is discovered and after a few weeks of treatment the condition has failed to return. The extraordinary features of this case consist in the frequent occurrence and spontaneous reduction of the intussusception.—(*Ibidem.*)

RUPTURE OF THE UTERUS AND PERINEUM IN A MARE DURING PARTURITION [*J. B. Buxton.*].—Valuable mare due to foal has been straining during the night without result. She looks like a solid oblong of flesh, with only a narrow strip of daylight under her. The under surface of the abdomen at the posterior part was four and a half inches from the ground and the front part seven inches. The under surface of the thorax gradually sloped upward from seven to sixteen inches. Each teat is large enough to fill an ordinary teacup. Vaginal exploration shows that the passage is very small and in reaching the uterus it is found displaced, the head of the foetus was wedged beneath the brim of the pelvis and the foetus is struggling violently. Both fore feet of the foetus were projecting through the perineum about six inches below the vulva. Evidently there was a rupture of the uterus and as the mare shows signs of failing rapidly, with the consent of the owner, she was immediately destroyed and the foal delivered through the unnatural channel. On making a post mortem a large rent was found in the uterus, the abdomen contained a large quantity of blood-stained fluid. The intestines were much injected, the rectus abdominis muscle was ruptured at its pelvic attachment.—(*Ibidem.*)

RUPTURED ŒSOPHAGUS [*F. S. Probyn, Capt. A. V. C.*].—Interesting case of injured œsophagus, result of a kick that a nine-year-old mare received from another horse on the left side of the neck and breast. A hot and painful swelling over the lower portion of the left side of the neck was the consequence. Fever, raising of temperature, 102-4, pulse 52, hot fomentations, laxative diet, legs bandaged. No improvement took place. The swelling kept up increasing, extended to the breast and forearm. Considerable difficulty in swallowing accompanied with stiffness of the neck and disinclination to move. The breast was scarified

and about two quarts of putrid liquid escaped with mixture of pus and food materials. The diagnosis was evident. The animal was to be operated at once. Cast, anesthsied partly with morphia and cocanie, the œsophagus was exposed and showed a rupture which was closed with catgut painted over with collodion. Interrupted sutures closed the outside wound. There kept, however, an escape of fluid containing food material coming from the operated wound. This was reopened and as the stitches of the œsophagus held tight it was rightly supposed that there was another rupture further up in the neck and the case being considered as beyond treatment the animal was killed. At the autopsy a rupture 3 inches long was found in the upper portion of the œsophagus, about 4 inches from the pharynx. The rupture of the lower part of the œsophagus was progressing satisfactorily.—(*Veterinary Record*.)

FRACTURED PASTERN.—Aged hunter working now in a mineral water van. Had been laid up two or three weeks for badly broken knees. Was doing well and sent home. Seen one morning in good condition; he was found very lame on the same evening on one of his hind legs, the off one. He was unable to stand on it and could not be moved out of his stall. On examination for the cause of this condition, a fracture of the off-hind pastern was detected. The horse was immediately killed and the bone found broken into six pieces. A few minutes before being detected lame he had apparently been perfectly well. Question: Could such condition be caused by the horse stamping hard on the ground?—(*Veterinary News*.)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

HUMERO-RADIO-CUBITAL LUXATION IN A DOG—REDUCTION—RECOVERY [*Mr. L. Auger*].—A dog, aged 18 months, is thrown from a carriage. He walks on three legs, the right fore carried forward, does not rest on the ground. It is not vertical. The forearm forms with the arm a very obtuse angle opened outward. On the external face of the elbow joint, on a

level with the lower end of the humerus is observed a depression which does not exist on the sound leg and is accompanied with a projection formed by the radius. Inside of the elbow, an inverse condition is observed on palpation, above there is a projection due to the internal edge of the humeral trochlea and below a depression on a level with the superior extremity of the forearm. It is perfectly clear that the radius is pushed outward and the diagnosis is evident: Luxation outward of the elbow.

The animal is anesthised. When the muscular resolution is obtained, extension and contra extension are made by assistants pulling moderately in opposite direction and by manipulations of the articulation, coaptation is obtained and manifested by the characteristic clapping which always accompany such result. The luxation having returned when an attempt was made to flex the leg, a silicated bandage was applied and left on for about two weeks. When it was removed, the reduction was perfect, but the animal was still lame and did not put weight on his leg. However, little by little this condition improved and recovery was perfect in six weeks.—(*Journal de Zootech.*)

INOCULATION OF BACTERIDIAN ANTHRAX—LONG INCUBATION [*Mr. H. de Chavanges*].—Called to make a post mortem of a cow that had died suddenly, the author was told that death had taken place because the cow could not deliver her calf. Indeed, through the vulva bulged out portion of the placenta and the legs of the foetus. However, the autopsy had to be made. A globular mass, blackish in the centre, infiltrated with citrine serosity, was noticed in the pharyngeal region. Other similar lesions were also observed along the neck to the entrance of the chest. These were evident lesions of bacteridian anthrax and the condition of the heart and spleen left no doubt as to the diagnosis. The hand of the operator was the seat of superficial scratches, he washed it in water of doubtful cleanliness and could not get a thorough washing with soap and Phenicated water until later on. This was too late. The hand became painful, but no attention given to it, and six days after the author went and delivered another cow. Thirteen days after this last cow died with anthrax inoculated by the diseased condition of the man's hand, which required severe treatment to be controlled. From six to eight days of incubation for the man and from thirteen to fifteen for the cow are certainly unusually long periods of incubation which are worth recording. (*Progres Veterin.*)

OSTEO-SARCOMA OF THE TESTICULAR REGION, WITH GENERALIZATION IN A STEER, CASTRATED WITH DOUBLE SUB-CUTANEOUS TORSION METHOD [*Daille and Sabatti*].—Nine-year-old steer presents an enormous neoplastic mass, weighing 10 kilograms, irregularly bosselated and adherent to the skin of the scrotum.

This tumor involves the entire lower part of both spermatic cords and has all round a few isolated nodules varying in size from that of an ordinary nut to that of a man's fist. The lumbo-aortic lymphatic glands are infiltrated with identical neoplastic tissues. The lungs are containing numerous secondary nodules, situated in the thickness of the parenchymatous tissue, or immediately under the pleura. On this serous, there are disseminated nodules giving it the aspect of tuberculous lesions. The initial tumor and all the secondary growths have similar macroscopic characters. They are very hard and when cut with a saw they have the appearance of a spongy tissue. Histologically they are osteoid sarcoma or Osteo-Sarcoma. The carcass of the animal which had been killed for the butcher, was put away and not allowed to be used for general consummation. All generalized tumors impose the destruction of the entire carcass by the meat inspector.—(*Revue Veter.*)

DEATH OF TWO CRYPTORCHIDS, SEVERAL WEEKS AFTER BEING OPERATED [*Mr. Filiatre*].—1. A fifteen months colt, affected with left cryptorchidy, was operated. The day of the operation he was in apparent perfect health and nothing indicated in his general condition that he was the carrier of internal lesions which would cause death in a short time. Operated and placed under ordinary special regime; two days after he was noticed refusing his food and had colics. His condition was alarming. Hernia was suspected, but rectal examination revealed that everything was normal in the ring. Bleeding was performed and a sedative drench prescribed, with the application of mustard under the abdomen. The next day the animal is worse. Condition remained about the same and death took place on the eighth day. Nothing wrong could be found around the seat of operation, but a large abscess of strangles surrounded the right kidney, which was floating and partly putrified and containing five liters of creamy pus.

2. Before being operated this colt, which is now eighteen months old, has always had a very large abdomen. The cryptorchidy existed on both sides and both operated at once the same

day. A few days later there is a large swelling of the sheath, hind legs, and extending to the anus. This is scarified and cauterized with deep points of firing irons. The swelling went away for a few days, but returned. The animal died. At the post mortem, there was found an hypertrophy of the liver, which weighed 80 kilogramms. As suppuration was well established at the points of operation, the supposition of septicæmia was excluded. Although the author has practiced castration for years, he never has met with such conditions.—(*Rec. de Medec. Veter.*)

SPONTANEOUS RUPTURE OF THE AORTIC TRUNK IN A HORSE [*Mr. Piot-Bey*].—This was observed in a fourteen-year-old mare, of small size and in fair condition. While dragging a cart loaded with manure, one morning she goes on about 400 meters, suddenly stops, drops, tries in vain to get up and dies almost instantaneously. Rupture of a large blood vessel was suspected at once and confirmed by the post mortem. On opening the pericardium a large clot of blood was extracted. At the base of the aortic trunk there exist a rupture measuring about four centimeters and concealed, so to speak, by the pulmonary artery and the right auricle. The rupture was neat and as if made by one sudden giving away. There were positively no dissecting aneurism.—(*Rev. Gener. De Medec. Veter.*)

KILLING OF LARGE ANIMALS [*Mr. Fayet Cabassu and Moreau*].—The authors do not wish to pass a review of all the various means or instruments used to kill large animals. Those are too numerous. They only want to say a few words on that which they consider as the surest and most economical, the one which has less surprises for the operator and promotes less repulsion for those who are watching the operation. They consider principally the circumstances where a sentence of death has to be applied, say in public or in streets.

Electrocution, if applicable, would be practical.

The opening of the posterior Aorta through the rectum has been resorted to by some. But can it be done?

Chloral has also been recommended. Chloroform is useful for small subjects in tracheal injections or again through the veins. For large animals the result is too uncertain.

Sulphate of strychnia has been used by them. One gramm dissolved in 20 of tepid water and given in intra-thoracic injection has killed a horse in three minutes and thirty seconds. They have repeatedly tried the similar operation whenever called

to destroy large animals in public and the success they have obtained bring them to the conclusion that strychnia is the surest, most practical and most elegant manner to proceed.—(*Repert. de Polic. San. Veter.*)

ITALIAN REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

A CASE OF ACUTE NEPHRITIS IN A HORSE [*Dr. L. Cominotti*].—Although this affection has been the object of several descriptions, and among them those of Friedberger and Frohner, Kitt, Verheyen, Hable and others, the author has thought the history and symptomatology of his case worth recording.

Since some days this horse has shown some irregularities in his appetite and manifested great pain in micturition. He is in a fair condition, yet is dull and looks indifferent. In walking he drags his hind legs. The visible mucous membranes are pale, the pulse strong and full, 80 per minute. Respiration accelerated with nothing abnormal on percussion. Temperature 37 degrees. Under the abdomen from the sternum back there is a swelling pitting on pressure. The hind legs are swollen. The loins are very sensitive. Rectal examination is negative, as the horse rebels much against it.

After a while these symptoms are more marked. There is great thirst and the animal absorbs enormous quantity of liquids without appearing to ever have enough. The fœces are either constipated or diarrheic and fœtid. Micturation is very frequent and painful. Small quantity of urine is expelled. The quantity in one day is 2300 c. m. It is cloudy, thick, yellow-brownish in color, alkaline and contained considerable quantity of albumin. No sugar. The microscopic examination of the deposits reveals numerous granular casts and epithelial cells. The condition of the horse rapidly became aggravated and he died after a few days.

At the post mortem the kidneys were found rather enlarged, of normal consistency. Their capsules was readily taken off. The external appearance was rosy-brownish in aspect. Some echymotic spots were found in the cortical substance. The pelvis of the kidneys contained mucilaginous matter white-yellowish in

color. The bladder contained some dense, yellow-reddish urine. The mucous membrane was slightly congested. The microscopic examination revealed the true lesions of acute nephritis.—(*La Clinica Veter.*)

DIPHTEROID VAGINITIS IN A COW [*Dr. G. Sparapani*].—This animal is six years old. The history is that she has been in calf, that her gestation had presented nothing abnormal; but that her delivery had been very difficult and required the assistance of an empiric of great fame in the neighborhood.

When examined, she has the appearance of an animal suffering with acute vaginitis, abundant flow from the vulva, with unpleasant odor and of a greyish color with striæ of blood. The animal did not seem to have any pain except that she had shown before some difficulty in micturating and in passing her fœces. The temperature was $41^{\circ}5$. The pulse 75 to 80. Examination of the vagina shows that the mucous membrane is covered with false membranes, greyish and strongly adherent. Attempts to remove small patches of those was followed with minute local hemorrhage. There were also small diphteroid ulcerations.

The bacteriologic and microscopic examinations revealed their nature and the presence of the typical bacillus of necrosis.

Remembering the descriptions of Moussu, as well as those of McFadyean, Jensen and others, the author arrived to conclusions that were readily confirmed of the nature of the trouble. Washings with saturated solutions of salicylic acid and a bolus of sulphate of quinine formed the whole treatment.—(*La Clinica Veter.*)

"GOLA DI LUPO" PALATINE FISSURE, DUE TO MECHANICAL CAUSE [*Dr. Ottorino Mancinelli*].—This is the Italian name that the author gives to the condition that he found in the mouth of a sheep which, when he drank, had a large quantity of the liquid returned through the nostrils mixed with blood. At first he suspected the case to be one of foot and mouth disease, and prescribed a mild treatment of chlorate of potash and milk. A few days later he found the animal in about the same condition, but with greater irritation and infiltration of the mucous membrane. The escape of the same saliva was also present. A more thorough examination of the parts made with a speculum showed an extensive wound of the hard palate, which was on the median raphe of the mucous membrane loose and separated from the soft tissues. The animal was killed.—(*Il Nuovo Ercolani.*)

TUMEFACTION OF THE FRÆNUM LINGUÆ, DUE TO MECHANICAL CAUSE [*By the Same*].—A four-year-old steer is found one morning with the tongue swollen and protruding from the mouth. There is an abundant discharge of saliva and rumination has stopped. The animal cannot even take liquids. He is much prostrated, and carries his head low down. The swelling of the tongue extends to the commissure of the lips and the mouth is quite congested, specially in the region of the frænum, where the swelling is as big as a middle-sized orange. The tongue is rather indurated in its anterior portion. A free incision is made with a lancette on each side of the tumor and by pressure a great quantity of serosity mixed with blood was squeezed out. Gradually everything assumed its normal appearance. It is probable that there had been some obstruction of the ducts of the sublingual glands, and that this was the cause of the peculiar condition following.—(*Il Nuovo Ercol.*)

SUFFOCATION BY TONSILITIS [*By the Same*].—Female goat of three years old had refused her food since a few days and she salivates abundantly. She is rather feverish and makes now and then efforts to urinate or drop her fœces. After a few days of an ordinary treatment with chlorate of potash she is rather improved, takes a little drink, yet she has fever and her voice has become cavernous and hoarse. Attempts were made to examine the back part of her mouth, but she struggled so much that it was imperfect, and only the inflammatory condition could be detected. The condition grew worse rapidly and finally death took place without a positive diagnosis being made.

At the post mortem the only principal lesions were in the throat. The whole region was considerably inflamed and the seat of severe tonsilitis. The amygdales were three times their normal size and had undoubtedly been the cause of the suffocation by interfering with the air passages.—(*Ibidem.*)

GERMAN REVIEW.

By J. P. O'LEARY, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

ARE TUBERCLE BACILLI PRESENT IN THE MUSCLE TISSUE AND IN THE APPARENTLY HEALTHY LYMPH GLANDS OF TUBERCULAR ANIMALS? [*Dr. Johannes Swierstra*].—In the course of

his experiments regarding the infectiousness of the meat and apparently healthy lymph glands of tuberculous animals, Swierstra employed guinea pigs, rabbits, goats, pigs and a calf. These animals received subcutaneous and intraperitoneal injections of muscle juice. Seventeen experiments proved negative. The following table is compiled from the positive results:

A.—Cattle.

Experiment No. IV.—An emaciated cow with extensive tubercular lesions. The muscle juice was virulent.

Experiment No. V.—A cow with extensive tuberculosis of the serous membranes, in addition to necrotic tubercles; she was extremely emaciated. The muscle juice was virulent.

Experiment No. VII.—Tubercular cow in which the tubercles showed extreme softening. The lymph juice was virulent.

Experiment No. XV.—Cow affected with acute miliary tuberculosis of the lungs and extremely emaciated. The muscle juice was virulent.

Experiment No. XXI.—Cow affected with acute miliary tuberculosis of the lungs and somewhat emaciated. The muscle juice was virulent.

Experiment No. XXIII.—Cow with purulent necrotic tubercles in the lungs. The lymph juice was virulent.

Experiment No. XXV.—Cow affected with osteo-tuberculosis and a softened nodule in the lung. Lymph juice virulent.

B.—Swine.

Experiment No. II.—Hog affected with chronic generalized tuberculosis in which both submaxillary and retropharyngeal glands were very much enlarged and contained necrotic foci. The muscle juice proved virulent.

Experiment No. XIV.—Hog affected with chronic generalized tuberculosis and extremely emaciated. The muscle juice was virulent.

As a result of the foregoing experiments the following conditions must be taken into consideration in judging the virulence of the meat of tuberculous animals:

- 1st. Whether acute miliary tuberculosis is present, and, if so, it must be borne in mind that acute miliary tuberculosis of the lungs can lead to the condemnation of the meat.
- 2d. Whether the tubercular nodules are necrotic.
- 3d. Whether the tuberculous animal is emaciated.
- 4th. Whether osteo-tuberculosis is present.

When Swierstra, in the course of his experiments, speaks of necrotic tubercles he refers to those nodules which, when incised, are found to contain pus. Here we have to deal with a mixed infection of staphylococci and streptococci. We note the latter chiefly in broncho-pneumonia, and as a result several embolic nodules form in various organs. These nodules vary in age and we can readily understand how the blood is becoming continually more or less infected. Therefore we need not be alarmed when we find emaciation existing in connection with this necrotic tubercular condition. As has been proven by experiment No. 5, it is not essential that the body lymph glands should be affected in each case. According to the experiments of Swierstra, in many cases virulent tubercle bacilli were found in the meat and apparently healthy lymph glands of tuberculous animals. Swierstra explains the negative results obtained by Westenhoeffers and Hoefnagels in their experiments as due to the small quantities of meat introduced subcutaneously and as a consequence too few bacilli being transmitted to the experiment animals. The results of Swierstra's investigations cover the entire field which the German meat inspection regulations provide regarding the judging of the meat of tubercular animals and with which he entirely agrees. He also recommends the sterilization of the meat of tubercular animals in the following instances:

1st. In all cases of tuberculosis which has lead to extreme emaciation.

2d. In tuberculosis with extremely softened nodules.

3d. In tuberculosis with indications of a fresh haematogenic infection, even if the lungs only are acutely affected.

4th. In tuberculosis in which the bones are the seat of diseased processes.

With regard to the latter, Ostertag justly remarked that this is not well founded, as cow No. 25, affected with tuberculosis of the bone, also had necrotic nodules in the lung. Regarding the infectiousness of the macroscopically unchanged lymph gland Swierstra emphasizes the fact that when softening of the tubercle took place the juice was already infectious, notwithstanding only one tubercular nodule was present. This demonstrates the fact that the infection of the blood was of short duration and that the tubercle bacilli stored up in the body lymph glands had scarcely time to lead to the formation of tubercular nodules.— (*Zeitschrift für Fleisch und Milch-hygiene*, 17 bd., S. 37.)

LOCAL TETANUS AND ITS ORIGIN [*Staff Surgeon C. Pochhammer*].—Localized tetanus at the point where infection takes place (wounds, seat of inoculation), usually precedes generalized tetanus in animal experimentation. In the human subject and in the larger domestic animals this is rarely observed. The author has endeavored by experimental procedure to solve the problem whether it is possible to explain the origin of the local tetanic spasms through the fact only of the absorption of the tetanus toxine by the peripheral nerve fibres. Summarizing as follows: The local muscular spasms in tetanus depend not upon an intoxication of the central nervous system, nor upon a direct effect of the tetanus poison on the muscles (Zuipinck), but rather upon an intoxication of the peripheral nerves. The tetanus toxine is not conducted to the axis cylinder processes of the peripheral nerves, but is deposited and confined in the substance of the medullary sheath of the nerve fibres (chemical affinity), the tetanic spasms arise from an interruption in the insulation between the sensory and motor nerve fibres in the mixed peripheral nerve tracts as a result of changes in the medullary substance caused by the tetanus toxine. The substance of the medullary sheath acts antitoxically on the circulating blood (Lipoide). The origin of the antitoxine and also explanatory of the immunizing action of the brain pulp (Experiments of Wasserman and Fakaki). After the tetanic symptoms have appeared no beneficial results are to be expected from the antitoxine treatment. The value of serum-therapy in general depends on prophylaxis.—(*Deutsche Medecin. Wochenschrift*, 34 Jahrg., 1908, No. 16, Sect. 685.)

THE TREATMENT OF NERVOUS DISTEMPER OF THE DOG [*Vet. J. Wohlmuth, Vienna*].—Wohlmuth recommends as treatment in the nervous forms of distemper in dogs, Levico arsenical water. According to his experience this water given in large doses acts as a specific for this disease, arrests its progress and in the majority of cases results in complete recovery. The Levico arsenical water is prepared for use in strong and weak solutions. Wohlmuth prescribes the strong preparation only. During the first week dogs are given two tablespoonfuls three times daily, diluted with milk, the second week three tablespoonfuls three times daily. In general the dose is to be computed according to the severity of the case at hand, the age and constitution of the patient. Bromide preparations and other varieties are to be absolutely avoided. Wohlmuth further remarks that good results may be obtained

from the use of Levico arsenical water in the treatment of brust-seuche of the horse, also in influenza and petechial fever (*Lier-ärztliches Centralblatt*, No. 31, 1907).

WITH REFERENCE TO THE PRESENCE OF TUBERCLE BACILLI IN MILK SAMPLES AND THE PRESERVATION OF SUCH SAMPLES SENT FOR EXAMINATION WITH 5 PER CENT. BORACIC ACID ADDED [*Dr. Gustav Kuhn*].—Besides the clinical examination of the udders of milch cows for the detection of tubercular lesions, we have the bacteriological examination of the milk to aid us. It has been said that samples of milk sent by dealers and others to the bacteriological laboratories had soured rapidly in warm weather and consequently could not be examined satisfactorily. In order to avoid this rapid fermentive change Rübiger advises the addition of boracic acid to the milk samples in the proportion of 5 per cent., after which the microscopical examination can be conducted without hindrance. On the other hand it was questionable whether the milk so treated was still suitable for the inoculation of experiment animals or whether the tubercle bacilli were rendered less virulent by the addition of the preservative. In order to elucidate this question Kuhn undertook a series of experiments, the results of which are as follows:

First—That an addition of 5 per cent. boracic acid, whether in the form of a powder or solution, suffices to preserve the milk from souring for at least 15 days.

Second—That through the addition of this agent the virulence of the bacteria contained in the milk was not appreciably influenced.—(*Zeitschrift für Infektionskrank., parasitickrank, und Hygiene d. Haustiere*, Bd. II, S. 58.)

A RARE FORM OF TUBERCULOSIS IN SWINE, AFFECTING THE ADIPOSE TISSUES [*Dr. Jos. Böhm, Nürnberg*].—Böhm observed in a hog, the fat of which was being trimmed from the carcass for rendering into lard, trodules about the size of a millet seed to a pea (subcutaneous lymph glands?) in six different parts of the panniculus adiposus in the region of the shoulders and back, the bacteriological examination of which revealed the presence of tubercle bacilli. In addition Böhm had observed repeatedly in cattle and swine tuberculosis in one or more body lymph glands without visible lesions in the spleen or kidneys. Also extensive miliary tuberculosis of the pia mater in a heifer. In this case only, both bronchial lymph glands were affected to quite a degree,

while the posterior mediastinal glands and pleura were involved to a lesser extent.—(*Zeitschrift für fleisch und Milchhygiene*, XVII, S. 311.)

CONCERNING SOME GROWTHS RESEMBLING NODULES ON THE PERITONEUMS OF CATTLE [*Dr. Pietro Stazzi*].—Not infrequently we find in horses tufted connective tissue growths on the peritoneum, whose origin Kitt ascribes to the irritating action of animal parasites which have gained entrance to the abdominal cavity. At the post mortem examination held on some cattle (aged about ten months), which were employed in the Behring's Jennerization experiments at Mantara, the author found in the peritoneum, besides these growths already mentioned, others in the form of small non-pedicated nodules. Those formed singly or in groups on the parietal and visceral folds of the peritoneum and varied in size from a flax seed to a lentil. Numerous submiliary nodules were found, particularly on the omentums of these cattle. As this condition naturally lead to the suspicion of miliary tuberculosis, the modules were thoroughly examined histologically and bacteriologically, but no proof of the presence of tubercle bacteria could be determined. In the centre the nodules consisted of a thick layer of leucocytes together with a few cells of the connective tissue type, and on the periphery a thin layer of similar tissue, vascular and rich in fibrillæ and with few round cells, which were scattered in the subserous connective tissues.

These new formations had a homogenous translucent appearance, others again had lost this property through transformation of their central portion into connective tissue. In the granulation tissue many nodules were alveolar or cone-shaped, which were lined with cubical or cylindrical cells. Although the nodules in question are similar to epi or endothelcoma in their initial stage, the author believes that their origin is due to a chronic inflammatory process and agreeing with Kitt that these connective tissue formations are the result of parasitic irritation (*Berliner Tier Wochenschrift*, No. 3, 1907).

CONCERNING A NEW ELEMENT IN MILK [*A. Kindl and Neumann*].—As a result of the investigations carried on by Kindl and Neumann, they found in the milk of the cow, cat, dog, guinea pig and rabbit an ultra-microscopical body which possessed decided molecular movement. Its nature is yet unknown. The authors termed it Laktokonien. It is not present in human milk.—(*Vorläufige Mittheilung, Wiener Klinik Wochenschrift*, 1907, S. 214.)

APPENDICITIS AN INFECTIOUS DISEASE [*Emil Haim*].—Haim maintains that appendicitis is an infectious disease sui generis, as it closely resembles the other infectious diseases in all its features. The cause is probably due to the *Bacillus coli communis*; the pus producers staphylococci, streptococci, pneumococci, in rare cases, the influenza, typhoid and tubercle bacilli. With these various organisms it is possible to produce well-defined symptoms of the disease having a characteristic course, progress and termination. The author has been able to produce a disease in experiment animals (rabbits) by injections of various species of bacteria in the ligated appendix, which bears a close resemblance to the same disease in man. The manner in which infection takes place is as follows: The pathogenic bacteria present in the intestines succeed in gaining the appendix and there produce an inflammation. In angina especially, or where bacteria are localized in the body, this factor plays an important part, as the organisms are swallowed or find their way into the appendix through the blood. As is the case with other infectious diseases, appendicitis appears at times epidemically.—(*Prague Med. Wochenschrift*, 1907, S. 453.)

INTRAPERITONEAL INJECTIONS OF CHLORAL HYDRATE IN THE TREATMENT OF SEVERE COLICS IN THE HORSE [*Dr. Breton*].—In treating severe colics various indications have to be taken into consideration, particularly to obviate the occurrence of internal hemorrhages, to combat the atonic condition of the digestive tract and principally to alleviate pain, for in relieving the latter the animal is quieted and many complications are avoided, such as ruptures and torsions of the intestines. In order to produce insensibility to pain the author uses intraperitoneal injections of chloral hydrate in very severe cases of colic. The narcoma which is rapidly induced lasts from three to four hours, during which time the pulse and respiration regulate themselves, and when the injection is properly given and aseptic precautions taken throughout, it is absolutely without risk.

The dose is 1 grain to 10 kg. bodyweight, dissolved in 10 grains of distilled water, and the solution must be made directly before using. For the injection one may use a serum injection apparatus (but preferably that invented by Casper). The operation is performed at the usual seat, anterior to the external angle of the illeum on the left side. Care must be taken to disinfect the part thoroughly previous to the operation. If a tympanitic

condition be present the gas must be allowed to escape by puncturing the caecum. The author describes five cases cured after bleeding, and an injection of 0.06 grms. pilocarpine and 0.03 grms. eserine, and an intraperitoneal injection of from 30 to 50 grms. chloral hydrate. The chloral hydrate should not be given systematically in all attacks of colic, but only in very severe cases in which the pain is intense.

The action of chloride of barium and other oleaginous purgatives is not influenced in the least by the chloral hydrate injections. When the stimulating alkaloids, pilocarpine and arecolin are administered before the chloral hydrate injection their action on the intestines is null. They shorten the duration of the narcoma by rapidly eliminating the anaesthetic. If we wish to excite intestinal peristalsis during narcosis we should use instead the chloride of barium.—(*Berliner Tier. Wochenschrift*, No. 6, Fol. 6, '08.)

AFTER the meeting of the M. V. M. A., held in Portland, the members were invited to a luncheon at the splendid residence of Dr. W. S. Lord, after which the members visited Dr. Westcott's hospital, and returned home by late Pullman.

THOSE who were at the banquet of the A. V. M. A., at Cleveland, in 1905, will regret to learn of the sad intelligence of the death of Dr. Charles J. Aldrich, the noted alienist and neurologist, who was our guest on that auspicious occasion. Many will remember Dr. Aldrich's able and scholarly discourse made in response to the toast, "The Field of Medicine," which was listened to with rapt attention, and that our lamented editor, the late Dr. Roscoe R. Bell, sat beside him at the banquet board.

CHANGES IN THE FACULTY OF THE NEW YORK-AMERICAN VETERINARY COLLEGE.—Prof. William J. Coates, M.D., D.V.S., has been elected Dean of the New York-American Veterinary College and his distinguished predecessor, Professor Liautard, Emeritus Dean. Dr. H. D. Gill succeeds Dr. Coates as Secretary of the Faculty, while W. Reid Blair, D.V.S., succeeds Edward K. Dunham, M.D., as Professor of Comparative Pathology and Pathological Histology, and Dr. Harry D. Hanson, the late Dr. Roscoe R. Bell, as Professor of Materia Medica and Therapeutics.

CIVIL SERVICE EXAMINATION.

VETERINARIAN.

The United States Civil Service Commission announces an examination on September 16, 1908, at places mentioned in a list printed by the Commission, to secure eligibles from which to make certification to fill a vacancy in the position of veterinarian, at \$1,200 per annum, Quartermaster's Department at Large, Philippine Islands, and vacancies requiring similar qualifications as they may occur in the Philippine Islands.

The appointee will be expected to serve for not less than two years, unless his services are sooner dispensed with for the convenience of the Government. Salary will begin on the date he takes oath of office in San Francisco, and transportation will be furnished from San Francisco to the Philippine Islands. If he remains in the employ of the Government for two years, or if he is sooner discharged for no fault of his own, he will be given return transportation and subsistence to the United States and will be paid his salary to the date of his arrival in the United States.

As the Commission has experienced considerable difficulty in securing sufficient eligibles to meet the needs of the service in this position, qualified persons are urged to enter this examination.

The examination will consist of the subjects mentioned below, weighted as indicated:

Subject.	Weights.
1. Letter writing	10
2. Veterinary anatomy and physiology	20
3. Veterinary pathology	20
4. Veterinary practice	40
5. Training and experience	10
Total	100

Applications will be accepted only from persons who have been graduated from reputable veterinary colleges.

Age limit, 20 years or over on the date of the examination.

This examination is open to all citizens of the United States who comply with the requirements.

This announcement contains all information which is communicated to applicants regarding the scope of the examination, the vacancy or vacancies to be filled, and the qualifications required.

Applicants should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the board of examiners at any place mentioned in the list printed by the Commission, for application Form 1312. No application will be accepted unless properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

As examination papers are shipped direct from the Commission to the places of examination, it is necessary that applications be received in ample time to arrange for the examination desired at the place indicated by the applicant. The Commission will therefore arrange to examine any applicant whose application is received in time to permit the shipment of the necessary papers.

LEGISLATION IN CANADA.

Comparatively little original legislation affecting agriculture, or concerning the veterinary profession, was enacted at the last session of the Dominion Parliament, but some very important amendments to existing acts were made. Amendments reported as follows in the *Farmer's Advocate*, of August 5th, Winnipeg, are of especial interest to the veterinary profession:

The Meat and Canned-foods Act, enacted in 1907, and put into operation under the supervision of the Veterinary Director-General, was amended in two particulars. Under the original measure only such packing plants as were declared by the Minister as coming within the operation of the act were inspected. Under the amendment all plants already under the operation of the act remain under it, and, in addition, all other packers come under its control until exempted by Order-in-Council. That is to say, no packing or canning plant is allowed to ship food products out of the province in which they are located unless according to the regulation governing the act.

Heretofore only twenty-eight plants were under inspection, which made it difficult for the Department to control the common carriers in regard to export transportation. Under the amendment hundreds of factories, including all not exempted, will be subject to inspection. This greatly simplifies the control of transportation companies, which are not allowed to carry from one province to another the products of meat packing plants, unless bearing the "Canada Approved" stamp.

The second amendment has reference to the labels permitted to be used on canned goods. The original measure provided that the package must bear the name and address of the packer or packing firm putting up the goods. Under the amendment the privilege of labelling is extended to the first dealer obtaining the goods from the packer who sells or offers the same for sale. It is provided, however, that such dealer must, on request of the Government inspector, give the name of the packer of such article. This amendment was the result of appeals from extensive firms, who have built up reputations for certain brands of goods that may have been put up by many small packing concerns in a locality who utilize identical products and put them up by a uniform process.

Previous to the operation of the Meat and Canned Foods Act, the canned foods trade came under the supervision of the Department of Inland Revenue. The amendment here referred to is in effect a total repeal of the old measure.

Appropriations.

For the administration of the Health of Animals Branch, \$300,000 is made available. This is \$50,000 less than last year. The reduction is the result of a less call for indemnities—for slaughtered glandered horses, the disease being stamped out in many sections where it heretofore prevailed. For the enforcement of the Meat and Canned Foods Act, \$120,000 is voted. This is \$45,000 greater than last year's vote. The vote for the Live Stock Branch has been increased from \$45,000 in 1907 to \$65,000 this year. The increased appropriation is for the general work of the branch, including the Record of Performance for pure bred dairy cows, the development of the sheep industry, and the publication of an increased number of bulletins and reports.

SOCIETY MEETINGS.

INTERNATIONAL CONGRESS ON TUBERCULOSIS.

SEPTEMBER 21—OCTOBER 12.

SECTION VII.

TUBERCULOSIS IN ANIMALS AND ITS RELATIONS TO MAN.

President—Dr. Leonard Pearson, Philadelphia. Vice-Presidents—Dr. Langdon Frothingham, Boston; Dr. Joseph Hughes, Chicago; Dr. Marion Dorset, Washington; Dr. B. Meade Bolton, Washington; Dr. James Law, Ithaca, N. Y.; Dr. A. D. Melvin, Washington; Dr. Veranus Moore, Ithaca, N. Y.; Dr. A. Peters, Jamaica Plain, Mass.; Dr. M. P. Ravenel, Madison, Wis.; Prof. H. L. Russell, Madison, Wis.; Dr. D. E. Salmon, Montevideo, Uruguay; Dr. E. C. Schroeder, Washington; Dr. Theobald Smith, Boston; Dr. C. W. Stiles, Washington; Dr. A. R. Ward, Berkeley, Cal. Secretary—Dr. John R. Mohler, Washington, D. C.

PROVISIONAL PROGRAM.

Outline of Topics for Section VII.

A. *Prevalence of Tuberculosis*—Among domestic animals, the relation of tuberculosis to the animal industries, economic importance of this disease.

B. *The Modes of Infection*—Portals of entry, influences favoring infection, relation of methods of husbandry to the prevalence of tuberculosis in animals.

C. *The Diagnosis of Tuberculosis in Animals*—Physical examination, bacteriological examinations of tissues, secretions and excretions; serum reactions; tuberculin tests, systemic and local reactions.

D. *Resistance to Tuberculosis*—As shown by genera, species, breeds, families and individuals; the conditions that influence natural resistance; artificial immunity, extent, duration, vaccination against tuberculosis, methods, results and practical application.

E. *Methods for Controlling Tuberculosis in Animals*—Methods applicable in heavily and in lightly infested herds and districts; results of operations in different countries and in the various states of the United States.

F. *The Comparative Bacteriology and Pathology of Tuberculosis in Animals*—The inter-relationships of tuberculosis in animals of different species.

G. *The Relation of Tuberculosis in Animals to the Public Health*—The evidence for and against the transmission of tuberculosis from animals to man; infection of man from animals by association, inoculation, feeding of meat and milk.

H. *Milk Hygiene*—Its relation to tuberculosis in animals; methods that may be adopted to prevent the milk supply.

I. *Meat Hygiene*—Its relation to tuberculosis in animals; guiding principles and rules by which the meat inspector should be governed in adjudging the carcasses of animals infected with tuberculosis.

S. Arloing, Lyons, France.—*Rapports des Tubercules Humaine et Bovine.*

Geo. F. Baker, San Francisco, Cal.—*Tuberculosis Among Range Cattle in California.*

A. W. Biting, Purdue University.—*The Infection of Swine from Tuberculous Cattle.*

W. Reid Blair, New York.—*Tuberculosis in Wild Animals.*

C. A. Cary, Agricultural College, Alabama.—*The Dissemination of Tuberculosis in Domestic Animals in the Southern States.*

J. W. Connaway, University of Missouri.—*The Enlistment of the Educational Forces of the State in the Suppression of Tuberculosis of Animals.*

W. H. Dalrymple, Agricultural College of Louisiana; Chas. F. Dawson, State College Newark, Del.—*The Oculo-tuberculin Reaction in Cattle.*

R. R. Dinwiddie, Experiment Station, Ark.—*The Susceptibility of Cattle to the Virus of Surgical Forms of Human Tuberculosis.*

George B. Jobson, Franklin, Pa.—*The Tuberculin Test of Cattle in Its Relation to Public Health.*

L. A. Klein, Harrisburg, Pa.; M. E. Knowles, Helena, Mont.; C. J. Marshall, Philadelphia, Pa.; J. R. Mohler, Washington, D. C.—*Tuberculosis Among Cattle on the Open Range.*

A. D. Melvin, Department of Agriculture, Washington, D. C.—*The Economic Importance of Tuberculosis of Food-producing Animals.*

V. A. Moore, Cornell University.—*The Value of Tuberculin in the Control of Tuberculosis in Herds.*

A. B. Nelson, State College, Washington.—A Study of the Results of the Continuing Injection of Tuberculin upon Tuberculous Cattle.

Otto G. Noack, Reading, Pa.—Meat and Dairy Herd Inspection as Preventive Measures Against the Spread of Tuberculosis Among Cattle.

Leonard Pearson, Philadelphia, Pa.; Austin Peters, Boston, Mass.—Lessons from the Experience of Massachusetts in the Control of Tuberculosis of Cattle.

A. T. Peters, University of Nebraska.—The Relation of Tuberculosis of Swine in Tuberculous Herds.

Jesse E. Pope, Orange, N. J.—Tuberculosis of Cattle from the Farmer's Standpoint.

M. P. Ravenel, University of Wisconsin; M. H. Reynolds, University of Wisconsin; J. G. Rutherford, Ottawa, Canada; Dr. Salazar, Havana, Cuba.—The Control of Bovine Tuberculosis.

E. C. Schroeder, Department of Agriculture, Washington, D. C.—An Observation Relative to the Economic Eradication of Cattle Tuberculosis.

S. Stewart—The Pathology of Tuberculosis of Swine.

Dr. Kinsley, Kansas City, Mo.; A. R. Ward, University of California, and C. M. Haring, University of California.—Prevalence of Tuberculosis Among Dairy Cattle near San Francisco, Cal.

A. S. Wheeler, Biltmore, N. C.—The Bang Method for Controlling Tuberculosis of Cattle.

D. S. White, University of Ohio.—The Oculo-tuberculin Test for Tuberculosis in Bovine Animals.

JOINT SESSION.

Papers to be Read at the Joint Session of Section I. and VII. on Wednesday Afternoon, September 30.

S. Arloing, Lyons.—Rapport de la Tuberculose Bovine et Humaine.

Theobald Smith, Boston.—The Question of the Transformability of the Human and the Bovine Types of the Tubercle Bacillus.

J. Fibiger and C. O. Jensen, Copenhagen.—Human and Bovine Tuberculosis and the Tubercle Bacillus.

Dr. Lewis, Boston.—The Types of Tubercle Bacillus isolated from cases of Tuberculosis of the Cervical Glands in Human Beings.

R. M. Dinwiddie, Experiment Station, Ark.—The Susceptibility of Cattle to the Virus of Surgical Forms of Human Tuberculosis.

M. P. Ravenel, Madison, Wis.—Title to be announced.

Lydia Rabinowitsch-Kemperer, Berlin.—Title to be announced.

J. N. Davalos and J. Cartaya, Havana.—Comparative Study of Tubercle Bacilli of Human and Bovine Origin.

TITLES OF PAPERS FOR SECTION I.

Dr. WILLIAM H. WELCH, President.

Milton J. Rosenau, Washington, D. C.—“The viability of the tubercle bacillus.”

Victor C. Vaughan, Ann Arbor, Mich.—“A study of the proteids of the tubercle bacillus.”

John Weinzerl, Seattle, Wash.—“The action of diffuse light upon bacillus tuberculosis.”

Dwight M. Lewis, New Haven, Conn.—“The morphology of the tubercle bacillus.”

S. Arloing and Paul Courmont, Lyons, France.—“Nouvelles Cultures Homogenes des bacilles de la Tuberculose.”

J. N. Davalos and J. Cartaya, Havana, Cuba.—“Comparative study of the tubercle bacillus of human and of bovine origin.”

A. Rodet, Montpellier, France.—“La Virulence du bacille dans ses rapports avec l'évolution clinique de la tuberculose pulmonaire.”

A. Parker Hitchens, Glen Olden, Pa.—“A chamber in which dried tubercle bacilli may be handled without danger.”

N. Ph. Tendeloo, Leyden, Holland.—“Channels of infection.”

Julius Bartel, Vienna, Austria.—“Über Eintrittspforten der Tuberkulose.”

G. Kuss, Agincourt, France.—“Sources et voies d'infection de la contagion tuberculeuse.”

S. Bernheim, Paris.—“Les portes d'entree de la tuberculose.”

S. Bernheim, Paris.—“Rapports de l'air avec la contagion tuberculeuse. Sterilization de l'air.”

Alfred F. Hess, New York.—“A study of the tuberculous contamination of New York City milk.”

Jules Courmont and A. Lesieur, Lyons, France.—“Inoculation transcutanee de la tuberculose.”

Julius Bartel, Vienna—"Immunisirungsversuche gegen Tuberkulose."

Jules Courmont and A. Lesieur, Lyons—"Contribution a l'immunité dans la tuberculose."

A. B. Marfan, Paris—"Immunité de l'homme pour la tuberculose."

Y. Ishigami, Osaka, Japan—"Tuberculo-toxoidin and immunisation serum."

Eugene L. Opie, New York—"The part of enzymes tuberculous lesions."

Aldred S. Warthin, Ann Arbor, Mich.—"The frequency of healed tuberculosis of the mesenteric glands, with particular reference to the relationship between hyaline deposits in these glands and the healing of tuberculous lesions."

S. Arloing, Lyons, France—"De l'infection tuberculeuse d'après le criterium anatomo-pathologique."

John McCrea, Montreal, Canada—"Analysis of 1,000 consecutive autopsies in Montreal with reference to the incidence of tuberculosis in the different organs."

A. R. Landry, Montreal, Canada—"Incident of chronic pleurisy in 1,400 autopsies in Montreal, and its relationship to tuberculosis."

Leon Barnard, Paris—"Etude anatomique et pathologique des lésions non-folliculaires de la tuberculose."

R. Tripier, Lyons—"De la pneumonie dans le processus de la tuberculose pulmonaire."

J. Paviot, Lyons—"Processus anatomique de l'hémorrhagie la tuberculose au début."

Joseph Walsh and C. M. Montgomery, Philadelphia—"The kidneys in tuberculosis of the lungs."

D. J. McCarthy, Philadelphia—"Tuberculosis of the spinal meninges, with a consideration of the mode of infection of these structures."

J. T. Ullom, Philadelphia—"The liver in tuberculosis."

Walter Altschul, Prague, Austria—"Zur pathologie der Peritoneal-tuberkulose."

Charles Esmonet, Puy de Dom—"De la tuberculose expérimentale du testicule."

O. Amrein, Arosa, Switzerland—"Periostitis et adipositis tuberculosa toxica multiplex."

Paul Courmont, Lyons—"Proprietes humorales des exsudants tuberculeux, valeur, pronostique et therapeutique."

Camillo Calleja, Valladolid, Spain.

Alfred C. Crofton, Chicago—"An experimental and clinical study of the calcium metabolism in tuberculosis."

LIST OF SPECIAL LECTURES.

In connection with the Congress a series of special lectures will be delivered in Washington and elsewhere by eminent foreigners. The names of the speakers and the cities in which they will lecture follow.

Bernard Bang, of Copenhagen. Washington, October 3—Subject: "Studies in Tuberculosis in Domestic Animals and what we may learn regarding Human Tuberculosis."

A. Calmette, of Lille, France. Philadelphia, September 26—Subject: "Les nouveaux procedes de diagnostic precoce de la Tuberculosis."

Emil Coni, of Buenos Ayres. Washington, October 2—Subject: "La Lucha contra Tuberculosis en la Republica Argentina."

Arthur Newsholme, of Brighton. Washington, September 29—Subject: "The causes which have led to the past decline in the death rate from tuberculosis and the light thrown by this history on the preventive action for the future."

Gothold Pannwitz, of Berlin. Philadelphia, September 24—Subject: "Social Life and Tuberculosis."

R. W. Philip, Edinburgh. Boston, October 6—Subject: "The Anti-tuberculosis Programme Co-ordination of Preventive Measures."

C. H. Spronck, of Utrecht. Boston, October 7.

Andres Martinez Vargas, of Barcelona. New York, October 9—Subject: "Tuberculosis of the Heart, Blood and Lymph Vessels."

Theodore Williams, of London. Philadelphia, September 25—Subject: "The Evolution of the Treatment of Pulmonary Tuberculosis."

Dr. Maurice Letulle and M. Augustin Rey (joint lecture). Washington, September 30—Subject: "La Lutte Contra la tuberculose dans les grandes villes par l'habitation; methodes scientifiques modernes pour sa construction."

Dr. L. Landowzy, of Paris. Baltimore, October 5.

Dr. A. A. Wladimiroff, of St. Petersburg. Washington, September 28—Subject: "Biology of the Bacillus."

Prof. N. Ph. Tendeloo, of Leiden. Subject, "Collateral Tuberculosis Inflammation."

INTER-STATE ASSOCIATION OF LIVE STOCK SANITARY BOARDS.

The twelfth annual meeting of the above association convenes at the Hotel Raleigh, Washington, D. C., on September 14, 15 and 16, 1908.

This meeting occurring in the week between the meeting of the American Veterinary Medical Association, in Philadelphia, and the International Congress of Tuberculosis, in Washington, affords veterinarians who wish to attend the Congress of Tuberculosis an opportunity to make good use of the intervening time, and should be largely attended.

This association meets annually, and practically every State having a Live Stock Sanitary Board or a State Veterinarian is represented at these meetings.

At the date of this writing, we have secured the following program, and expect a few more papers of importance on Sanitary Control Work.

Progress of Tick Eradication, Dr. Tait Butler, North Carolina.

Control of Hog Cholera, Dr. A. D. Melvin, Washington, D. C.

The Importance of Prophylaxis in Sanitary Control Work, Dr. J. G. Ferneyhough, Virginia.

Control of Tuberculosis, Dr. A. D. Melvin, Washington, D. C.

Ways and Means of Eradicating Tuberculosis in Domestic Animals, Dr. O. E. Dyson, Illinois.

Federal, State and City Co-operation in the Eradication of Tuberculosis, Dr. D. F. Luckey, Missouri.

State Meat Inspection, Dr. J. M. Wright, Illinois.

Things to be avoided in passing laws governing Meat and Milk Inspection, Dr. M. E. Knowles, Montana.

Glanders, Dr. S. H. Ward, Minnesota.

Discussion, Dr. J. M. Wright, Illinois.

Three Diseases of Animals which have Recently Assumed Importance to the State Sanitarian, Dr. John R. Mohler, Washington, D. C.

Veterinary Sanitary Laws in the State of Washington, Dr. S. B. Nelson, Washington.

Five minute talks on sanitary conditions in the various states.

Members of the American Veterinary Medical Association, all visiting veterinarians, and all others interested in sanitary control work, are cordially invited to attend and to take part in the discussions.

CHAS. E. COTTON,
Secretary and Treasurer.

ASSOCIATION OF VETERINARY FACULTIES AND EXAMINING BOARDS OF NORTH AMERICA.

OFFICERS.

President—Dr. Joseph Hughes, Chicago, Ill.

First Vice-President—Dr. S. Stewart, Kansas City, Mo.

Second Vice-President—Dr. Wm. Herbert Lowe, Paterson, N. J.

Secretary-Treasurer—Dr. Tait Butler, Raleigh, N. C.

CONFERENCE COMMITTEE.

Dr. S. Stewart, Chairman.

Representing State Colleges—Dr. Leonard Pearson, Chairman, Philadelphia, Pa.; Dr. J. H. McNeil, Ames, Ia.; Dr. V. A. Moore, Ithaca, N. Y.

Representing Private Colleges—Dr. S. Stewart, Chairman, Kansas City, Mo.; Dr. Geo. H. Roberts, Indianapolis, Ind.; Dr. Roscoe R. Bell, Brooklyn, N. Y.

Representing Examining Boards—Dr. M. H. Reynolds, Chairman, St. Anthony Park, St. Paul, Minn.; Dr. Thomas Bland, Waterbury, Conn.; Dr. R. A. Archibald, Oakland, Cal.

Representing American Veterinary Medical Association—Dr. G. W. Dunphy, Chairman, Detroit, Mich.; Dr. Geo. H. Berns, Brooklyn, N. Y.; Dr. E. H. Shepard, Cleveland, O.

PROGRAM.

Monday, September 7, 1908. Hotel Walton, Philadelphia, Pa., 4.00 o'clock P. M.

1. Meeting called to order by President, Dr. Joseph Hughes.
 2. Reading of Minutes of Last Meeting.
 3. President's Address, by Dr. Joseph Hughes.
 4. Report of Secretary-Treasurer.
 5. Report of Standing Conference Committee, Dr. S. Stewart, Chairman.
 6. Report of Subcommittee Representing State Colleges, Dr. Leonard Pearson, Chairman.
 7. Report of Subcommittee Representing Private Colleges, Dr. S. Stewart, Chairman.
 8. Report of Subcommittee Representing Examining Boards, Dr. M. H. Reynolds, Chairman.
 9. Report of Subcommittee Representing The American Veterinary Medical Association, Dr. G. W. Dunphy, Chairman.
 10. Discussion of the Reports of above committees and the Report of the Committee on Veterinary Education Appointed by the United States Secretary of Agriculture.
 11. New Business.
 12. Election of Officers.
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MAINE VETERINARY MEDICAL ASSOCIATION.

The quarterly meeting of the above association was held at the Preeble House, Portland, Me., July 8, 1908. President Murch was in the chair, and Dr. C. W. Purcell acted as secretary pro tem., as Dr. Joly was attending a meeting of the State Board of Veterinary Examiners, in an adjoining room.

Members present—Drs. Murch, Purcell, Westcott, Lord, Watson, Pope, Potter, Spear, Stevens and Joly.

Visitors—Hon. John M. Deering, of the Cattle Commission, and veterinarians Robinson, Dow, Russell and Mebane.

Dr. Murch read a paper on the treatment of wounds, and Dr. Spear one on "Meat Inspection." Both papers were very interesting and brought general discussion.

Dr. Westcott was elected representative to the A. V. M. A. meeting at Philadelphia, in September. The application of Dr. Lynch was referred to the next meeting.

The following applications were received and referred to the executive committee: Drs. E. E. Russel, of New Sharon; W. L. Mebane, Bangor; Thos. Dow, of Perham, and W. H. Robinson, of Portland.

Drs. Purcell and Watson were appointed to prepare papers for the next meeting, which will take place in October, at Waterville.

A. JOLY,
Secretary.

SOUTH DAKOTA STATE VETERINARY MEDICAL ASSOCIATION.

We held our meeting in the college building at Brookings, South Dakota, July 2-3, 1908. There was a large attendance. Nine new members were elected. We are working hard to get a veterinary law in this state. Drs. J. A. Graham, Thos. H. Hicks and C. McDowell were appointed a Committee on Legislation. A number of very interesting papers were read. The second day was devoted to clinic and surgical operations. Election of officers resulted as follows: President, Dr. C. McDowell, Watertown; first vice-president, Dr. L. P. Brewster, Vermillion; second vice-president, Dr. T. H. Ruth, Desmit; secretary and treasurer, Dr. J. A. Graham, Sioux Falls.

The next meeting will be held at Sioux Falls the second Tuesday in July, 1909.

J. A. GRAHAM, *Secretary*.

THE BIRD'S SUPERIOR EYE.—The sight of birds is extraordinary, and the simple fact that the eye of a hawk and a pigeon is larger than their whole brain gives some idea of what their powers of sight must be and of how easily they can fly hundreds of miles if they have marks to guide them. Very little attention has yet been given by eye surgeons to the eye of the bird and other animals, from which so much is to be learned.—(*London Mail*.)

NEWS AND ITEMS.

Dr. L. E. WHEAT, M.D., V.S., died in Philadelphia, Pa., on the 12th ult.

THERE are few wild beasts more to be dreaded than a talking man having nothing to say.—(*Swift*)

MISSOURI's quarantine against southern cattle fever has been amended to conform strictly with the federal regulations.

Dr. C. W. CROWLEY, of St. Louis, Mo., recently made Professor Liautard a very pleasant visit at the latter's summer home at Draveul, France.

MRS. W. H. DALRYMPLE and children have been occupying a summer cottage this season on Sodus Bay, in the western part of New York State.

Dr. A. JOLY, Waterville, Me., Secretary of the Maine Veterinary Medical Association, is a candidate on the Republican ticket for Representative.

THE handsome features of Dr. T. Earle Budd grace one of the illustrations of the recent Atlantic City Horse Show in *The Rider and Driver* of August 1.

E. B. ACKERMAN, D. V. S., and E. J. Robbins, D. V. S., officiated in the capacity of veterinary inspectors at the Bay Shore Horse Show, Long Island, N. Y., August 6-8.

THROUGH the efforts of Dr. M. E. Knowles, Montana State Veterinarian, and Dr. W. P. Mills, of that State, a Montana association of Berkshire breeders has been organized.

BONY.—David Harum: That wuz a pretty good horse old Ez wuz drivin,' eh? Eben Holden: Yes, he had so many good points you could use him for a hat rack.—(*Pennsylvania Punch Bowl.*)

Dr. N. RECTENWALD, chief city veterinarian of Pittsburgh, Pa., suffers from a transverse fracture of the right patella which occurred June 7th last. He is making a favorable but slow recovery.

WHERE IT BELONGED.—Old Gent: Neat race, that, sonny! That black horse of Sheedy's is a dandy. But who does that little brown bobtail belong to? Boy: That belongs to the little brown horse, sir.

Dr. TOWNSEND, inspector in charge of the federal meat inspection service at Paterson, N. J., has been transferred to Milwaukee, Wis., and Dr. Waller, of the New York office, takes charge at Paterson.

APOTHECARY'S WEIGHT.—“I'm sure,” whispered the gossip, “that Mr. Pillsbury, the druggist, takes a dram occasionally.”

“Yes,” replied the bright girl, “I believe he has no scruples in that direction.”—(*Philadelphia Press*.)

JAMES C. MCNEIL, V.M.D., a member of the Pennsylvania State Board of Veterinary Medical Examiners, has been appointed Dairy Inspector of the City of Pittsburgh at an annual salary of \$1,800 and all traveling expenses.

Dr. JOHN H. MCNEIL, dean of the Veterinary Division of the Iowa State College, Ames, has accepted the chair of Veterinary Surgery and Obstetrics in the College of Veterinary Medicine, Ohio State University, made vacant by the resignation of Dr. Udall.

PRESIDENT DALRYMPLE has invited Mr. Nikola Kaumanns, Imperial German Agricultural Attache to this country, to address the forthcoming meeting of the A. V. M. A., at Philadelphia, on the Importance of the Veterinarian to the Live Stock Interests of his country.

Dr. W. W. DIMOCK (N. Y. State Veterinary College, '05) has resigned as first assistant in the Department of Animal Industry, Republic of Cuba, to accept the position as veterinary chief to the Superior Sanitary Board of Havana, and has been succeeded by Dr. Emelio L. Luaces (Kansas City Veterinary College '08).

Dr. B. F. KAUPP, for several years with the Kansas City Veterinary College; Dr. C. L. Barnes, of the Kansas Agricultural College; Dr. W. W. Courtwright, with the Bureau of Animal Industry, and Dr. Robert Bird, an English graduate, have all been added to the veterinary faculty of the State Agricultural College of Colorado. The Board of Control of that institution are having everything done necessary to make that school first class in every respect.

THE Board of Veterinary Examiners of the State of Maine met in Portland, July 8, 1908, and three candidates were admitted to practice, Drs. E. E. Russell, W. L. Mebane and Thos. Dow. Members of the board present, Drs. W. S. Lord, of Portland, and Dr. A. Jolly, of Waterville.

VETERINARY DEPARTMENT COLORADO AGRICULTURAL COLLEGE.—When the Investigating Committee for the United States Department of Agriculture visited Fort Collins, Colorado, to investigate the veterinary department of the state institution, it found that it was just organized, not in full running order, and had no graduates. Many of the contemplated plans in regard to laboratory facilities had not yet been carried out on account of the fact that they were making every effort to arrange and bring the course of instruction and laboratories up to the top notch. Dr. Geo. H. Glover, the energetic dean of the department, by aid of the Board of Regents and his co-workers, got busy at once. More members were added to the faculty and new equipment provided.

This faculty now has five men who are either members of or are eligible to membership in the American Veterinary Medical Association, and three lecturers who have a like qualification. The following laboratories have been equipped: Pathologic, in which pathology, parasitology, histology and laboratory diagnosis will be taught. A room is provided for a museum which is under this department; this museum at the present time has 140 specimens. Botanic, in which botany will be taught. Bacteriologic, in which bacteriology and methods of making serums and vaccines will be given; this is in connection with the Experiment Station. Zoologic, in which will be taught zoology and embryology. The zoologic laboratory building is a new stone structure, well-equipped and containing a large museum of rare specimens. Chemic, in which organic, inorganic and physiologic chemistry will be taught. The chemistry building is a large one devoted to this subject alone. Pharmaceutic, in which pharmacy will be taught. Anatomic, in which dissection of the horse, ox and dog will be conducted, also autopsy. A physiologic laboratory in which to teach laboratory physiology is being fitted up. A hospital for large and small animals. Three lecture rooms exclusively for veterinary classes.

As there is no medical department at this college, the teaching will be all purely comparative. Colorado people are determined to have a veterinary department of high standing and none to excel it.

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VETERINARY MEDICAL ASSOCIATION MEETINGS.

In the accompanying table the data given is reported by many Secretaries as being of great value to their Associations, and it is to be regretted that some neglect to inform us of the dates and places of their meetings.

Secretaries are earnestly requested to see that their organizations are properly included in the following list :

Name of Organization.	Date of Next Meeting.	Place of Meeting.	Name and Address Secretary.
American V. M. Ass'n.....	Sept. 8, 9, 10 & 11.	Philadelphia..	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.....	Jan. 14, 1909....	Trenton.....	W. Herbert Lowe, Paterson.
Connecticut V. M. Ass'n.....	.....	New Haven....	B. K. Dow, Willimantic.
New York S. V. M. Soc'y.....	Sept. 2, 3, 4, 1908.	Utica.....	M. Hamilton, Delhi.
Schuylkill Valley V. M. A.....	Dec. 16, 1908....	Reading.....	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Call of Chair....	Paterson, N.J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	Call Exec. Com.	.....	R. P. Marsteller, College Sta.
Massachusetts Vet. Ass'n.....	Monthly.....	Boston.....	Wm. T. White, Newtonville.
Maine Vet. Med. Ass'n.....	October.....	Waterville....	A. Joly, Waterville.
Central Canada V. Ass'n.....	.....	Ottawa.....	A. E. James, Ottawa.
Michigan State V. M. Ass'n.....	Feb. 2-3, 1909....	Lansing.....	Judson Black, Richmond.
Alumni Ass'n, N. Y.-A. V. C....	April, 1909.....	141 W. 54th St.	T. F. Krey, N. Y. City.
Illinois State V. M. Ass'n.....	.....	Galesburg....	N. I. Stringer, Paxton.
Wisconsin Soc. Vet. Grad.....	.....	.....	S. Beattie, Madison.
Illinois V. M. and Surg. A.....	.....	Centralia.....	Frank Hockman, Louisville.
Vet. Ass'n of Manitoba.....	Not stated.....	Winnipeg.....	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n.....	.....	Raleigh.....	Adam Fisher, Charlotte.
Ontario Vet. Ass'n.....	.....	.....	C. H. Sweetapple, Toronto.
V. M. Ass'n, New York City.....	1st Wed. ea. mo.	141 W. 54th St.	W. Reid Blair, N. Y. City.
Ohio State V. M. Ass'n.....	January, 1909....	Columbus.....	Sidney D. Myers, Wilmington
Western Penn. V. M. Ass'n.....	1st Wed. ea. mo.	Pittsburgh....	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	.....	St. Joseph....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n.....	Jan. 14, 1909....	Rochester....	J. H. Taylor, Henrietta.
Iowa Veterinary Ass'n.....	.....	.....	H. C. Simpson, Denison.
Minnesota State V. M. Ass'n.....	.....	Duluth.....	C. A. Mack, Stillwater.
Pennsylvania State V. M. A.....	Sept. 8.....	Philadelphia..	F. H. Schneider, Philadelphia.
Keystone V. M. Ass'n.....	Monthly.....	Philadelphia..	A. W. Ormiston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n.....	.....	Denver.....	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n.....	.....	Omaha.....	B. F. Kaupp, Fort Collins, Colo.
Rhode Island V. M. Ass'n.....	Jan. and June..	Providence...	T. E. Robinson, Westerly.
North Dakota V. M. Ass'n.....	.....	.....	C. H. Martin, Valley City.
California State V. M. Ass'n.....	2d Wed. in Aug.	Alameda.....	C. M. Haring, U. C., Berkeley
Southern Auxiliary of California State V. M. Ass'n.....	Jan. Apl. Jy. Oct.	Los Angeles..	J. A. Edmonds, Los Angeles.
South Dakota V. M. A.....	2d Tues. in Jy. '09	Sioux Falls..	J. A. Graham, Sioux Falls.
Nebraska V. M. Ass'n.....	Oct. 6-7, 1908...	Grand Island.	H. Jensen, Weeping Water.
Kansas State V. M. Ass'n.....	Jan., 1909.....	Topeka.....	B. Rogers, Manhattan.
Ass'n Médécalle Veterinaire Française "Laval".....	1st and 3d Thur. of each month	Lec. Room, Laval Un'y, Mon.	J. P. A. Houde, Montreal.
Province of Quebec V. M. A.....	.....	Mon. and Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n.....	.....	Not decided..	D. A. Piatt, Lexington.
Washington State Col. V. M. A..	Monthly.....	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association..	An'l, Jan., '09...	Indianapolis..	E. M. Bronson, Indianapolis.
Louisiana State V. M. Ass'n.....	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.....	2d Thu. ea. mo.	St. P.-Minneap	S. H. Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A.....	.....	.....	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n.....	.....	.....	J. C. Robert, Agricultural Col.
Georgia State V. M. A.....	.....	Atlanta.....	C. L. Willoughby, Experiment
Soc. Vet. Alumni Univ. Penn.....	June, 1909.....	Philadelphia..	B. T. Woodward, Wash'n, D. C.
Virginia State V. M. Ass'n.....	.....	Norfolk.....	W. G. Chrisman, Charlo'sv'le.
Oklahoma V. M. Ass'n.....	.....	.....	W. H. Martin, El Reno.
Veterinary Practitioners' Club..	Monthly.....	Jersey City...	A. F. Mount, Jersey City.
Vet. Ass'n Dist. of Columbia.....	4th Wed. ea. mo.	514-9th St., N. W.	F. M. Ashbaugh, Wash., D. C.
B. A. I. Vet. In. A., Chicago.....	2d Fri. ea. mo...	Chicago.....	J. Madsen, Chicago, Ill.
Arkansas Veterinary Society.....	.....	.....	B. H. Merchant, Little Rock.
York Co. (Pa.) V. M. A.....	Sept. 1, 1908...	York, Pa.....	E. S. Bausticker, York, Pa.
Philippine V. M. A.....	.....	.....	R. H. McMullen, Manila.
Montana State V. M. A.....	Oct., 1908.....	Helena.....	.....
Veterinary Ass'n of Alberta.....	.....	.....	C. H. H. Sweetapple, For. Saskatchewan, Alta., Can.
Chicago Veterinary Society.....	2d Tues. ea. mo.	Chicago.....	J. M. Parks, Chicago.
Maryland State Vet. Society.....	1st Wed. fol. the	Baltimore....	H. H. Counselman, Sec'y.
St. Louis Soc. of Vet. Inspectors.	2d Sun. ea. mo.	St. Louis.....	Wm. T. Conway, St. Louis, Mo.

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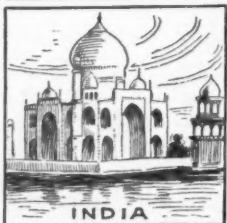


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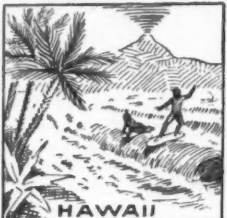


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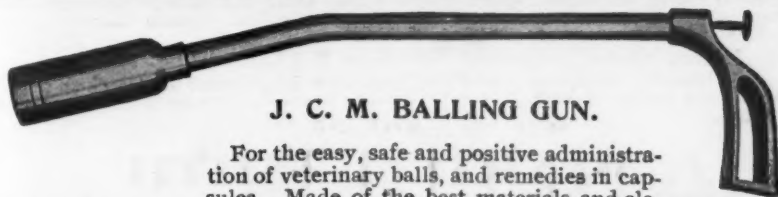


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FIG. B.



FIG. C.

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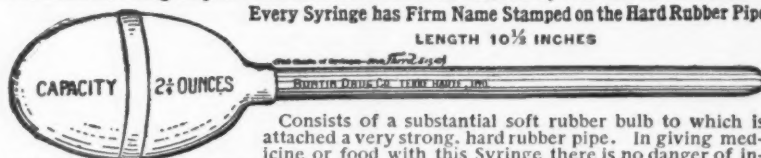
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Every Syringe has Firm Name Stamped on the Hard Rubber Pipe



Consists of a substantial soft rubber bulb to which is attached a very strong, hard rubber pipe. In giving medicine or food with this Syringe there is no danger of injuring the animal's mouth or breaking the Syringe; any quantity, from a teaspoonful to two ounces may be given at one injection.

BUNTIN DRUG CO., TERRE HAUTE, INDIANA
Manufacturers of Veterinary Hypodermic Tablets and Hypodermic Syringes

(Length 10½ inches.)

Prices Bulb Syringes, 75c. each; per half doz., \$4.00; per doz., \$7.50.

BUNTIN DRUG COMPANY,
600 Wabash Avenue TERRE HAUTE, INDIANA.

SEIMER & AMEND, Agents, 205-211 Third Ave., New York.

BUNTIN DRUG CO.'S SOLUBLE HYPODERMIC TABLETS. VETERINARY.

No.		Per tube of 10 tablets.
114	Aconitine, Crystals.....	1-40 gr. \$0 12
115	Aconitine, Crystals.....	1-30 gr. 13
100	Aconitine, Crystals.....	1-20 gr. 15
116	Aconitine, Crystals.....	1-10 gr. 17
117	Aconitine, Crystals.....	1-6 gr. 22
118	Aconitine, Crystals.....	1-4 gr. 27
159	Arecoline Hydrobrom.....	1/2 gr. 1 00
160	Arecoline Hydrobrom.....	1 gr. 1 80
101	Atropine Sulphate.....	1-4 gr. 15
121	Atropine Sulphate.....	1-2 gr. 18
119	Atropine Sulphate.....	1 gr. 33
158	Barium Chloride Comp (Ellis).....	18
	{ Barium Chlor..... 7 grs. }	
	{ Digitaline..... 1-12 gr. }	
152	Cardiac Tonic.....	25
	{ Digitaline, Pure..... 1-10 gr. }	
	{ Sparteine Sulph..... 1-5 gr. }	
	{ Strychnine, Nitrate..... 1-8 gr. }	
103	Cocaine Muriate.....	1 gr. 35
124	Cocaine Muriate.....	1-1/2 grs. 45
125	Cocaine Muriate.....	2 grs. 55
120	Cocaine, 4 1/2 grs. for Veterinary Anesthesia.....	1 10
	(One tablet dissolved in 1 drachm of water makes an 8-per cent. solution.)	
103	Colchicine.....	1-4 gr. 60
126	Colchicine.....	1-2 gr. 1 00
127	Colic (Knowles).....	65
	{ Morphine Sulph..... 2 grs. }	
	{ Atropine Sulph..... 1-4 gr. }	
	{ Aconite Cryst..... 1-20 gr. }	
104	Coniine Hydrobromate.....	1-2 gr. 43
128	Coniine Hydrobromate.....	1 gr. 60
105	Digitaline, Pure.....	1-8 gr. 20
129	Digitaline, Pure.....	1-4 gr. 35
156	Ergotine.....	2 grs. 18
157	Ergotine.....	4 grs. 27
113	Eserine Salicylate.....	1-4 gr. 50
133	Eserine Salicylate.....	1-2 gr. 75
134	Eserine Salicylate.....	1 gr. 1 25
135	Eserine Salicylate.....	1 1/2 grs. 1 90
106	Eserine Compound.....	1 00
	{ Eserine Salicylate..... 1-4 gr. }	
	{ Pilocarpine Muriate..... 1-2 gr. }	
	{ Strychnine..... 1-8 gr. }	
153	Eserine and Pilocarpine.....	1 50
	{ Eserine..... 1-2 gr. }	
	{ Pilocarpine..... 1 gr. }	
154	Colic (Forbes).....	2 75
	{ Eserine Salicylate..... 1 gr. }	
	{ Pilocarpine Mur..... 3 1/2 grs. }	
107	Hyoscyamine Sulphate, Crystals.....	1-8 gr. 1 00
146	Hyoscyamine Sulphate, Crystals.....	1-4 gr. 1 50
108	Morphine Sulphate.....	1 gr. 25
136	Morphine Sulphate.....	1 1/2 grs. 35
137	Morphine Sulphate.....	2 gr. 40
138	Morphine Sulphate.....	2 1/2 grs. 50
155	Morphine Sulphate.....	3 grs. 60
109	Morphine and Atropine.....	45
	{ Morphine Sulph..... 1 1/2 grs. }	
	{ Atropine Sulph..... 1/2 gr. }	
139	Morphine and Atropine.....	45
	{ Morphine Sulph..... 1 1/2 grs. }	
	{ Atropine Sulph..... 1/2 gr. }	
140	Morphine and Atropine.....	55
	{ Morphine Sulph..... 2 grs. }	
	{ Atropine Sulph..... 1-4 gr. }	
141	Morphine and Atropine.....	60
	{ Morphine Sulph..... 2 1/2 grs. }	
	{ Atropine Sulph..... 1-4 gr. }	
142	Nitroglycerine.....	1-10 gr. 14
143	Nitroglycerine.....	1-5 gr. 17
110	Pilocarpine Muriate, Crystals.....	1-2 gr. 35
144	Pilocarpine Muriate, Crystals.....	1 gr. 90
145	Pilocarpine Muriate, Crystals.....	1 1/2 grs. 1 10
111	Sodium Arsenite.....	1 gr. 12
112	Strychnine Sulphate.....	1-4 gr. 12
147	Strychnine Sulphate.....	1-2 gr. 13
148	Strychnine Sulphate.....	1 gr. 14
149	Veratrine Muriate.....	1-4 gr. 12
150	Veratrine Muriate.....	1-2 gr. 14

Please order by number.

Goods sent post-paid to any part United States or Canada upon receipt of price.

NOTE—Strong advance in opium and its salts compel advance in prices tablets with morphine.

Carbolic Acid, Boric Acid,
Boroglyceride, Sozodolol,
Hydrastine, Sodium Borate,
Eucalyptol, Thymol.

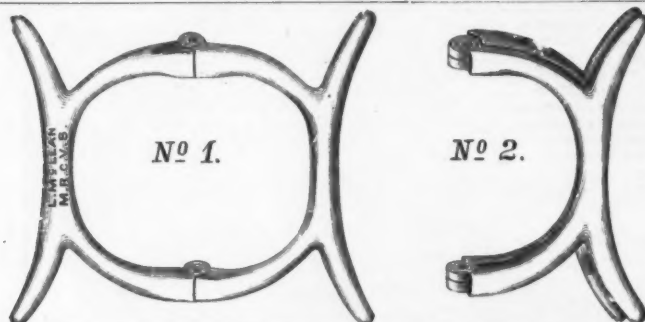
FORMULA:

Antiseptic, Antizymotic,
Deodorizer and Parasiticide.
Valuable Surgical Dressing, either dry or in solution.

SAL-LISTER
(A SOLUBLE POWDER.)

Dr. L. McLean's Vest Pocket Veterinary Mouth Speculum

PATENTED APRIL 10, 1906.



Commended by the Profession for its simplicity and adaptation for giving medicine in the bolus form, and making a macroscopic and digital examination of the mouth and throat. Price, \$3.00. Agents, Geo. Tiemann & Co., 107 Park Row, New York.

NEW YORK STATE VETERINARY COLLEGE,

ESTABLISHED AT

CORNELL UNIVERSITY, ITHACA, N. Y.

BY CHAPTER 153, LAWS OF 1894.

The best equipment for scientific and practical instruction, for undergraduates and post-graduates. Most varied practice for students in the free clinics. Regular graded course, three years of nine months each. Entrance by Regents' "Veterinary Student Certificate," or by examination, September 17th, 1907. Matriculation September 24th, 1907.

✻ ✻ ✻ Tuition Free to New York State Students.

For extended announcement address,

Professor JAMES LAW, F. R. C. V. S., Director.

ONTARIO VETERINARY COLLEGE, Limited,

40, 42, 44 and 46 TEMPERANCE STREET, TORONTO, CANADA.

Patrons.—Governor-General of Canada and Lieutenant-Governor of Ontario.

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All Experienced Teachers. - - - Fees, \$65.00 per Session.

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CHICAGO VETERINARY COLLEGE

2537 and 2539 State Street, Chicago, Ills.

Organized and Incorporated under the Laws of the State of Illinois, 1883.

Regular Session commences the first week in October in each year.

For Prospectus giving all information as to curriculum, fees, etc., address the President.

JOSEPH HUGHES, M.R.C.V.S.,

2537 and 2539 State St., Chicago, Ills.

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Wholesale Druggists,

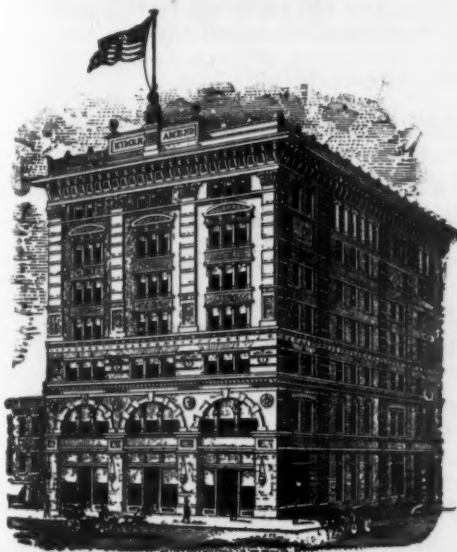
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Make a Specialty of all
Drugs, Extracts,
Tinctures, Chemicals,
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Veterinary practice..

E. & A.'s Veterinary
Glycerin Suppositories.

Sulfglycerole for skin
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PLANTEN'S

Improved Empty
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For Oral and
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CAPSULES

ORAL: 1-2, 1, 2, 3, 4, 7, 8 and 12 drachms.

RECTAL: 1 1-2, 1 and 1-2 ounce.

TRIAL BOX
BY MAIL
25 CENTS.

IMPREGNATION CAPSULES for Mares.

Sample Box 30 Cents.

ESTABLISHED IN NEW YORK IN 1836.

H. PLANTEN & SON, 93 Henry St., Brooklyn, N. Y.

"The Pioneer American Capsule House."

Manufacturers of Superior Filled and Empty Gelatine Capsules.

Capsulating Private Formulas a Specialty.

INTRAVENOUS THERAPY

To Veterinarians who have not adopted the **TALLIANINE INTRAVENOUS TREATMENT** for **PNEUMONIA, PURPURA HEMORRHAGICA** and other **SEPTIC CONDITIONS**, we will forward by express, securely packed (charges to be paid by the Veterinarian),

**ONE DOZEN TUBES OF TALLIANINE
AND
ONE STANDARD No. 4 VETERINARY INTRAVENOUS
INJECTING SYRINGE, COMPLETE**

For TEN DOLLARS. Cash to accompany the order.

This offer to the profession is suggested by the fact that many Veterinarians remain unacquainted with **TALLIANINE** by not having means of making satisfactory injections.

The order for the above must come to us **DIRECT**, and be upon the Veterinarians' professional paper, or accompanied by his card.

WALTER F. SYKES & CO.

85 Water Street, New York.

132 Chestnut Street, Philadelphia, Pa.

113 Broad Street, Boston, Mass.

Air-Cushion Rubber horse-Shoe Pads

IDEALISM IN HORSE-SHOEING.
It follows closely nature's scheme in anatomy and physiology, and is therefore correct.



Many horses that are lame on any other pad or shoe will go sound on Air-Cushion Pads.
There is a reason. "Write us."

Order by
"NAME."

Don't be deceived by inferior substitutes.

REVERE RUBBER CO., (Sole Mfrs.) Boston, New York, Pittsburg,
Chicago, New Orleans.

Complete Literature with records of cases upon request

TALLIANINE

TRADE MARK REGISTERED.

Administered by intravenous injections through the jugular vein, and has been demonstrated to be the most rational and positive treatment for Pneumonia, Purpura, etc., and all cases due to a septic condition of the blood.

"TALLIANINE"

— TRADE MARK REGISTERED —

Case No. _____ Surgeon: Dr. William Meek Date: March 25th 191
 Address: Easton, Pa.

RECORD.		Date		Pulse		Temp.		Resp.		REMARKS.
		1	2	3	4	5	6	7	8	
Animal: <u>Black Siding</u>		1	2	3	4	5	6	7	8	<u>On March 25th</u> <u>gave 15 cc. Tall-</u> <u>ianine. On the</u> <u>26th gave 10 cc.</u> <u>on the 27th 5 cc.</u> <u>On the 28th discharge</u>
Owner: <u>Chas. Scoville &</u>		9	10	11	12	13	14	15	16	
Easton, Pa.		17	18	19	20	21	22	23	24	
Age: <u>5</u> Weight: <u>119.0</u> lbs.		25	26	27	28	29	30	31	32	
CONDITION.										
DIAGNOSIS.										
TREATMENT.										
RESULTS.										
<u>Discharge</u> <u>Tallianine</u> <u>lived</u>										

WALTER F. SYKES & CO.

PHILADELPHIA

NEW YORK

BOSTON

To be ordered from all druggists and veterinary supply dealers
 or from the sole agents.

WALTER F. SYKES & CO.,

85 WATER STREET, NEW YORK.

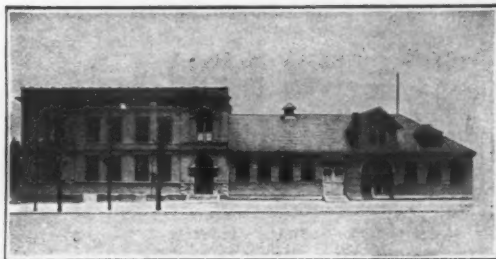
132 Chestnut St., PHILADELPHIA, PA. 113 Broad St., BOSTON, MASS.

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R. R. STREET & CO., 184 Washington Street, CHICAGO, ILLS.

INDIANA VETERINARY COLLEGE

Chartered by State of Indiana, December 24, 1892.



SESSION BEGINS OCT 1st.

A recent examination held by the Civil Service Commission showed 83 1/3% of the I. V. C. Class successful.

Tuition 1st term \$75, 2nd \$75, 3rd \$85, or if paid in advance \$200.

Write for Catalogue to

Prof. FERDINAND A. MUELLER, Ph. G., V. S.,
Indianapolis, Ind. Secretary



Incorporated under Chapter 138, of Vol. 3, Howell's Annotated Statutes of the State of Michigan.

Regular Session Commences the Last Wednesday in September and Ends the Last Thursday in March, Annually.

GOVERNED BY THE RULES OF THE A. V. M. A.

FEES FOR THE ENTIRE COLLEGE YEAR ARE \$85.00 with absolutely no extra charges, not even for final Examination or Diploma.

GRAND RAPIDS VETERINARY COLLEGE, MICHIGAN.

NOTICE.

A NEW STOMACH TUBE

For use in horses with ACUTE INDIGESTION; one that proves itself a winner in each case where a tube is needed. This tube as with all other instruments is claimed by the originators to be the best, and if demonstrations could be shown to all we are sure they would say it does the work. This tube is double throughout its length—ten feet—made of the best of soft rubber, it having two separate openings or one inlet, the other outlet. The outlet is large enough so that a half kernel of corn can come away easily. The tube is easily passed through the mouth with the use of a speculum.

For any particulars address,

KNISELY & STALLSMITH,
1117-1119 KANSAS AVE., TOPEKA, KANSAS.

WORMS in DOGS

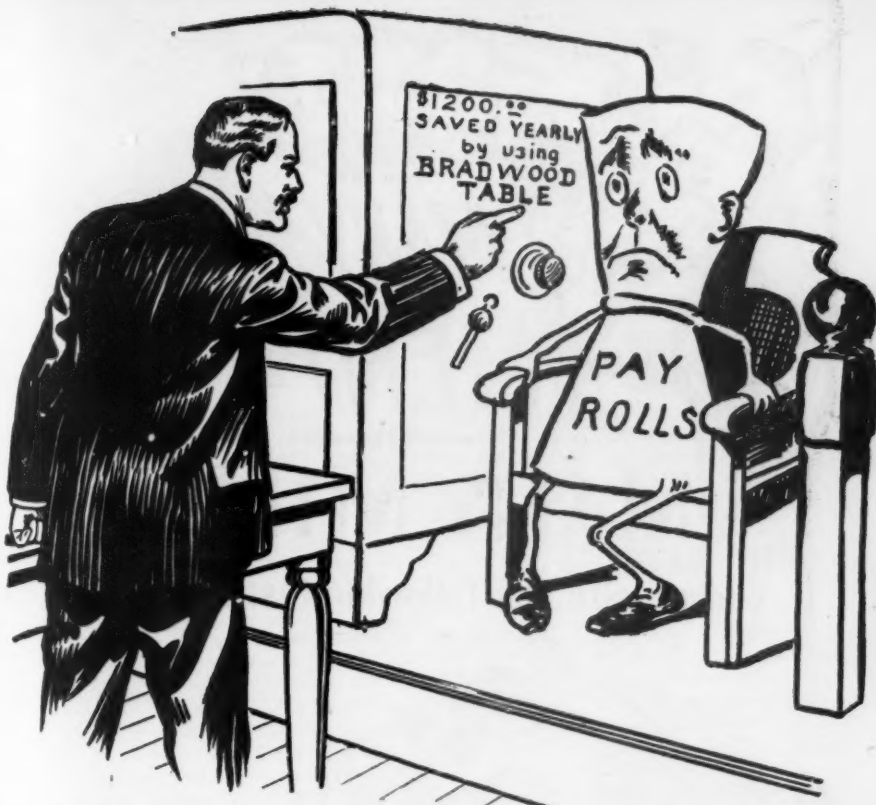
are quickly expelled by "TENALINE. A safe and efficient remedy. No after aperient necessary. Supplied in capsules of various sizes. Literature on application.

Stocked by Messrs. Schieffelin & Co., 170 & 172 William St., New York.

SOLE PROPRIETORS,

WILLOWS, FRANCIS, BUTLER & THOMPSON, Ltd.

40, ALDERSGATE STREET, LONDON.



It is a recognized fact that there is a shortage of veterinarians in the United States. Aid your assistant to start a veterinarian hospital of his own. Save the yearly salary of an assistant, amounting to \$1,200 or more, by purchasing and possessing the Bradwood Humane Equine Operating Table.

THE BRADWOOD MANUFACTURING CO.

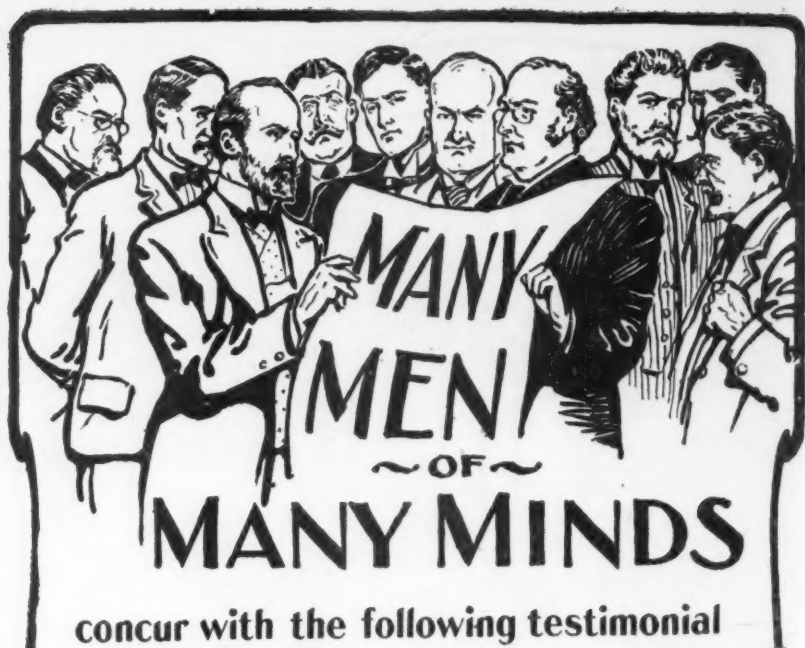


MANUFACTURERS AND LESSORS OF
THE HUMANE EQUINE OPERATING TABLE
 OFFICE & FACTORY 125 WATER ST.

New Haven, Conn.

This table can be used as a chair, allowing the patient to rest comfortably on the slings if necessary for several days. Also the table is so arranged that the injured animal can be lifted out of the ambulance by unhooking the ambulance slings, and placing the lifting device of the table with the slings on the animal while the animal is in the ambulance.

The table, when made into such a Humane Veterinary Chair, one side is removed and the veterinary ambulance is backed up to the table and the sling and lifting device of the table is placed on the injured animal as previously described.



The above cut shows a broken backbone of a horse. What a humiliation for a veterinarian to undertake to perform an operation, and break a horse's back by the use of ropes and hobbles. It not only leads to great dissatisfaction on the part of the owner of the animal, but to extreme humiliation on the part of the surgeon and indescribable suffering on the part of the horse. Many surgeons have operated on animals standing, taking the chance of injury to themselves, infecting the horse, and at times injecting strong doses of cocaine to accomplish such procedure. Many veterinarians have been killed in the past few years in trying to operate on horses without using the proper method for surgical restraint. Dr. Switzer, deceased, of Springfield, Mass., with whom we were negotiating for the sale of a Bradwood Humane Equine Operating Table, had the misfortune to receive a blow from a horse's foot, which fractured his skull, and he died instantly. There are several other unfortunate accidents, some terminating fatally, which our correspondence discloses during the past year, where the operator has been injured for life. One instance is the case of a veterinarian surgeon losing an eye, and another of a veterinarian surgeon having a sharp instrument kicked through his hand; still another being kicked a glancing blow on the face, tearing out his cheek, disfiguring him for life.

After going over our long list of correspondence which we have on file, we feel that we should do all within our power to protect both the surgeon and his patient, and we offer this absolutely safe, humane and practically indestructible instrument, the Bradwood Humane Equine Operating Table, on such terms, offering such inducements that every veterinarian can acquire it—indeed, cannot afford to be without this indispensable part of the equipment of the up-to-date veterinary hospital.

We will sell, for a short time, for the sum of \$550, which is practically the cost to manufacture, the Bradwood Humane Equine Operating Table, F. O. B. New Haven, with complete equipment, such as hobbles, slings, etc., ready for immediate use.

that there are no broken back horses when The Bradwood Revolving Operating Table and Chair is used. Veterinarians casting horses with old-fashioned and inadequate devices can be sued and compelled to pay for animals injured from throwing them on the ground when undertaking surgical treatment.

There is no text-book on veterinary surgery written by authority that does not comment on the injury to horses' backs when throwing them with ropes and hobbles.

IRON STAIRS, FIRE ESCAPES,
BEAMS AND WALK LIGHTS,
ELEVATOR ENCLOSURES,
RAILINGS AND GRILLES,
TIMBER HANGERS, SHOP CARS,
HAND BOXES, JAPAN OVENS.

WM. CROSSLEY, PRES. AND TREAS.

T. C. BRETT, SEC.

The Yale Safe & Iron Co.

MANUFACTURERS OF
ARCHITECTURAL IRON WORK

New Haven, Conn.

The Bradwood Manufacturing Co., Inc.,
New Haven, Conn.

Gentlemen:-

We will furnish f. o. b., cars on our siding twelve of your Improved Humane Equine Revolving Veterinary Operating Tables for Five Hundred and Fifty Dollars (\$550.00) each. Tables to be the same in all respects as the six we built for you some two years since.

It is understood that your Company is to furnish all patterns for cast, steel or bronze work, and the price being so close we would require cash payment on date of shipment. We could probably ship about one table per week.

Yours respectfully,

THE YALE SAFE & IRON CO.,

Wm. Crossley PRES.

The above cut shows photograph of estimate received from The Yale Safe and Iron Co. We have furnished this company our working drawings, which were for the best improved Humane Revolving Operating Table. We have not only furnished these drawings for estimates to this company, but to several other large machine manufacturers, and find they cannot build the table with the slings and hoppers for less than \$550. Last year we experimented on building a cheap table, which we could sell for \$350. On assembling one of the tables we found it was not a success, and have abandoned the idea of building a cheap veterinary operating table. To such veterinarians who are the first to purchase a table in a city where we have not previously sold one, we will sell the table for practically cost, including the entire equipment, F. O. B. New Haven,

Conn. It is necessary for us to receive and charge \$50.00 profit to veterinarians desiring to purchase on the installment basis. We would suggest to veterinarians who have graduated from college, and who contemplate buying one of our tables, and wish to raise money to purchase the same, to explain to several large horse owners the advantage of this apparatus as a Humane Veterinary Chair for animals suffering with broken knees, nail punctures and various punctured wounds which necessitate the use of slings for supporting animals and those cases which need surgical operations and surgical daily attention.

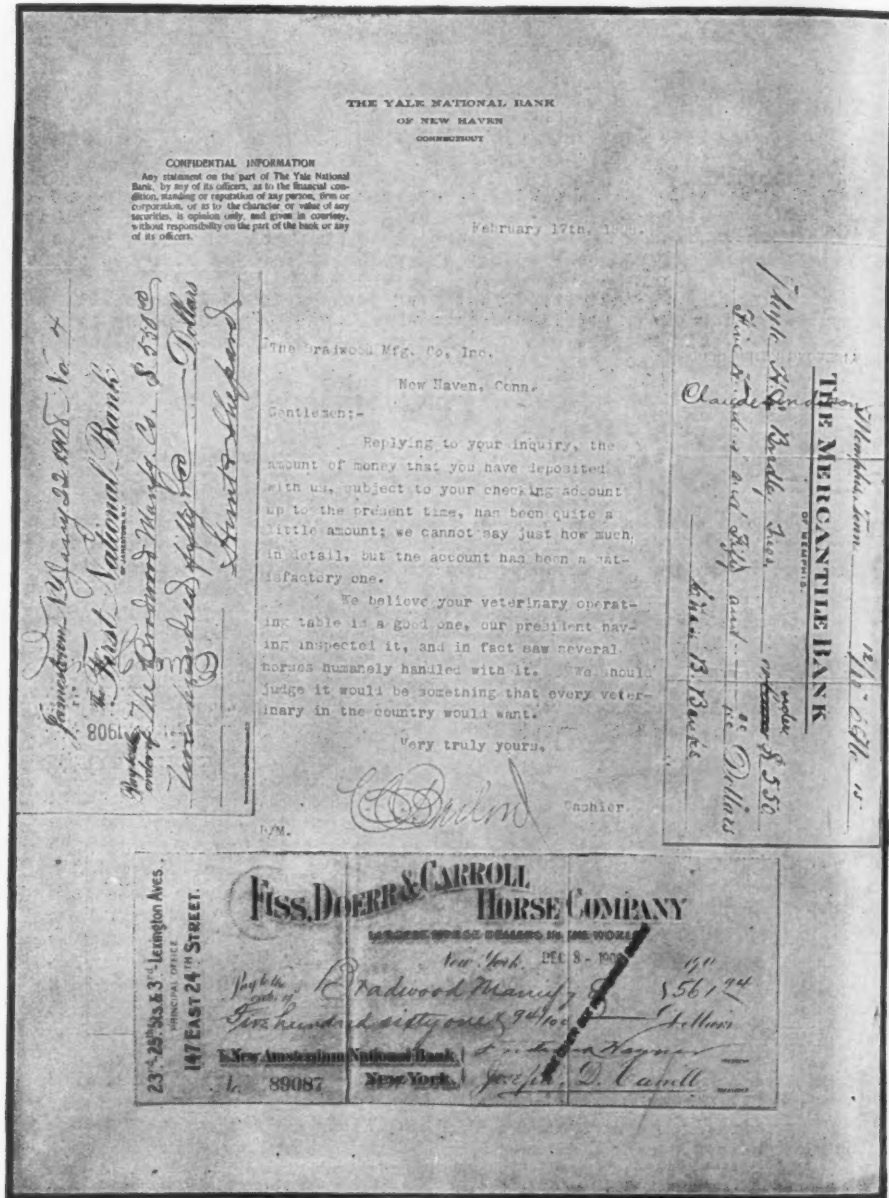
The saving of two or three animals which often lie down in dirty stalls and become infected will pay for the combination aseptic Humane Veterinary Chair and Table, and there is scarcely a stock owner in the country who would not advance a little money for such valuable equipment in any desired section, provided the veterinarian was worthy of aid.

To such veterinarians who cannot pay cash we will sell the table on an installment basis. We solicit correspondence and open our hands in sympathy with the veterinarians. We are glad to help all possible in upbuilding the veterinary profession.

This cut shows table turned partly over, surgeon working on the hind leg of an animal.

THE BRADWOOD MFG. CO.,
NEW HAVEN, CONN.

IMPORTANT NEWS TO VETERINARIANS!



The above photograph shows a letter from the Yale National Bank, and photographs of three checks, which were cash payments for tables. We have decided to sell this table for cost for a short time. We feel the professional spirit should predominate instead of the commercial spirit.

THE BRADWOOD MFG. CO., New Haven, Conn.

The Humane Equine Revolving Veterinary Operating Table is fast making its way across the Continent.

It can be inspected by prospective buyers in the following Veterinary Hospitals.

NEW YORK CITY. Dr. J. E. Ryder's Veterinary Hospital, 155 E. 24th St.

BROOKLYN, NEW YORK. Drs. McLean & McAuslin's Veterinary Hospital, 397 Carlton Avenue; Dr. Elisha Hanshew's Veterinary Hospital, 125 Carlton Avenue; Dr. Wm. J. Finn's Veterinary Hospital, 385 Jay St.

NEW BRITAIN. Dr. George W. Crowley's Veterinary Hospital.

NEW HAVEN, CONN. Dr. F. G. Atwood's Veterinary Hospital.

PHILADELPHIA, PA. Dr. Herman H. Weinberg's Veterinary Hospital, 418 Diamond Street.

WASHINGTON, D. C. Dr. C. Barnwell Robinson's Veterinary Hospital, 222 C Street, Washington, D. C.

MONTGOMERY, ALABAMA. Dr. S. A. Saul's Veterinary Hospital, 109 N. Lawrence Street.

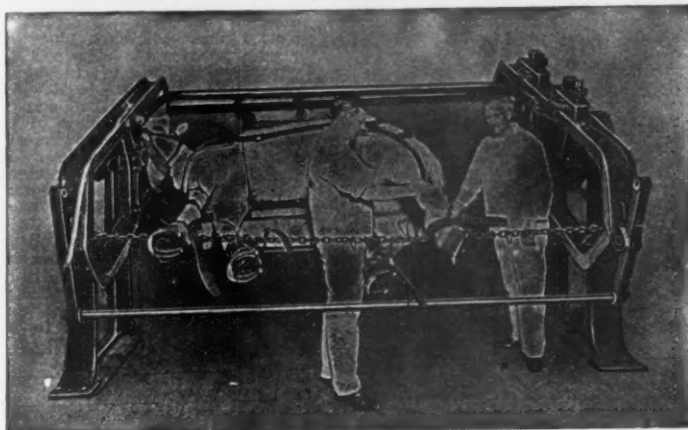
CHICAGO, ILLINOIS. Prof. M. H. McKillip's Veterinary Hospital, 1639 Wabash Avenue.

ST. LOUIS, MISSOURI. Dr. A. Darling's Veterinary Hospital, 3334 Pine St.

MEMPHIS, TENNESSEE. Dr. Chas. B. Banks, 287 Monroe Street.



ROARING OPERATION.



HORSE PLACED FOR SPAVIN OPERATION.

There are two extension leg and foot attachments, to which the feet can be fastened. This allows the surgeon to remove the chain and bar shown in this cut, and to approach any part of the patient without being hemmed in by machine and animal. One whole side can be removed and this makes a single sided table, having all the advantages of free accessibility to head of animal, by placing horse on table head toward back end.

We have for sale several second-hand flat tables which have been taken in exchange.

CORRESPONDENCE SOLICITED.

THE BRADWOOD MFG. CO.,
125 Water Street, NEW HAVEN, CONN.

Valuable Syringe Free!

This valuable aseptic syringe free with an order for twenty ounces of Mistur Muinidor Compound. Prices of this Compound to veterinarians:

1 ounce bottle,	\$1.00	12 ounce bottle,	\$10.00
2 ounce bottle,	2.00	20 ounce bottle,	15.00
6 ounce bottle,	5.00		

Price of syringe, \$5.00. With twenty ounces of the Compound we will include the syringe free. With twelve ounces of the Compound we will include the syringe for \$1.75 extra, if cash accompanies order.

The success of Mistur Muinidor Compound is perpetual. Read copy of letter received from Dr. H. C. Singer, M.D.C., Cowden, Ill.:

October 22nd, 1907.

United States Pharmacal Company, New Haven, Conn.
Gentlemen.—

Please send me six ounces of your Mistur Muinidor Compound. I have tried one ounce and it does just what you claim. Enclosed please find check for \$5.00 for six ounces. Please ship same immediately and oblige, I am,

Yours very respectfully,

(Signed) H. C. SINGER, M.D.C.

Every day fastens a new series of cures to its crowded record of achievements. Copy of letter received from The Yale Veterinary College Hospital, New Haven, Conn.:

November 4th, 1907.

United States Pharmacal Company,
New Haven, Conn.

Dear Sirs:—

We have used your Compound in the past three months, on a number of Spavins. We find the same works very satisfactorily, especially on incipient spavins which have never been fired or blistered, one being on a six-year-old valuable coach horse of which we herewith enclose you photograph. This animal the owner objected very much having blemished from the cautery point or firing iron.

To be frank with you we did not have a great deal of faith in curing a spavin with a hyperdermic injection. This particular case was one which was on a young animal and the gelding was extremely lame. The enlargement was small. When the animal's hock was flexed and held for a few seconds the animal would hobble along on three legs, which proved that the spavin was a bad one and of the occult kind. Four drachms of your Compound was injected under the skin, which caused considerable swelling. Four days after the injection we took a curved needle and placed a small sized seaton through the swelling and over the spavin, which is shown in photograph. This allowed a slight amount of serum to ooze out. Same was washed with antiseptic and will say that there was no hair disturbed from the animal's hock, and same remained during the treatment.

The seaton was allowed to remain for ten days, same being dressed antiseptically, and the animal stood in a straight stall and not allowed to lay down. On removing the seaton the animal's hock was bathed twice daily with antiseptic solution and the animal allowed to remain ten



days longer in the straight stall tied so that it could not lay down.

Twenty days after the injection the animal was trotted out and handled the limb nearly sound, showing scarcely any blemish. It being a valuable animal we recommended a further rest of four weeks. Then the animal was shod with a shoe slightly elevated at the heels and rolled slightly on the inside of toe. The animal has been working sound for several weeks past. The owner can not speak too highly of the treatment. We shall have to endorse your compound as being a valuable remedy; still, we must emphasize that the seaton and rest aided your compound considerable in bringing about this cure.

Under ordinary circumstances we should have fired the horse and blistered him in place of injecting the compound. This would necessarily mark the horse's hock for life and would have been an eyesore to the owner. With the use of your compound we have overcome this, for at the present time the animal would pass a very rigid veterinary examination and in many cases would be passed as a sound animal.

The two small places which were left from the seaton have haired out and are not noticeable. We have used your compound on curbs, splints, enlarged tendons, sheath, Bursitis capped elbow, capped hock, etc., painted on once daily with brush, with very gratifying success.

Thanking you for the samples which you have furnished us with, we are,

Very respectfully yours,

THE YALE VETERINARY COLLEGE HOSPITAL,
New Haven, Conn.

ON valuable animals which owners object to have branded with the cauterly or firing iron, and on those desperate cases pronounced incurable, on young and on the old, for incipient and chronic ailments, Mistur Muinidor Compound scores in a lasting triumph. There are no curative properties in a red hot iron. Firing never did and never will repair an injury. To fire a horse causes a blemish and an injury for life. One injury will not medicate another injury. Mistur Muinidor Compound is the latest and most powerful absorbent discovered. When injected under the skin over the diseased part causes rapid absorption and speedy relief to deep seated spavins. For splints, curbs, large tendons, ring-bones, side-bones, large glands, shoe-boils, etc., it may be applied with a brush, but for such an ailment as a spavin we recommend injecting same with a hyperdermic syringe, using from two to four drams, care being taken not to puncture a vein or to open the hock joint.

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Four days after injection.



Side view six weeks after injection.



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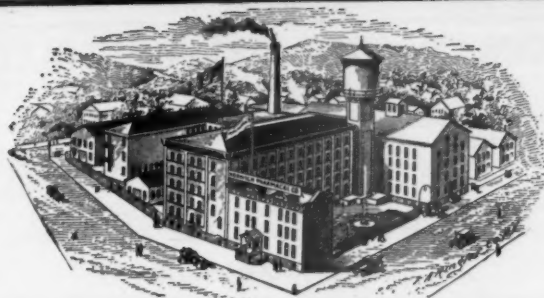
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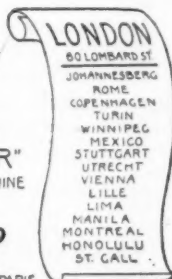


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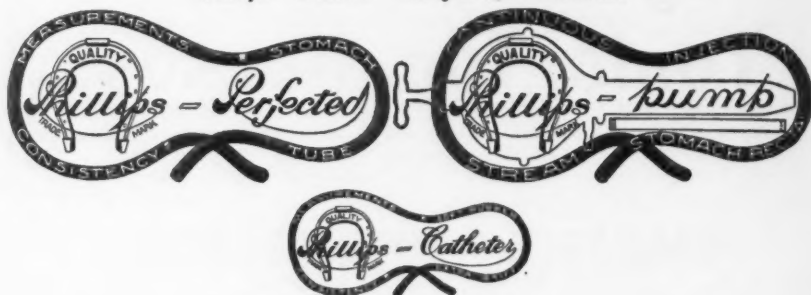
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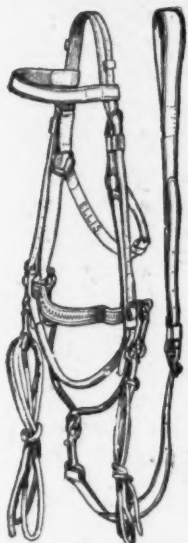
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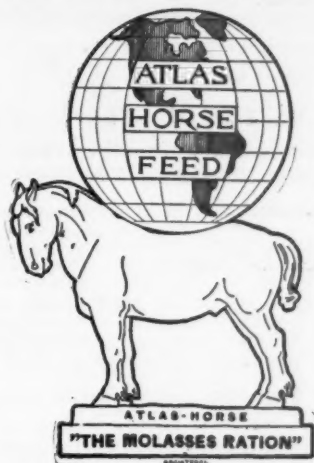
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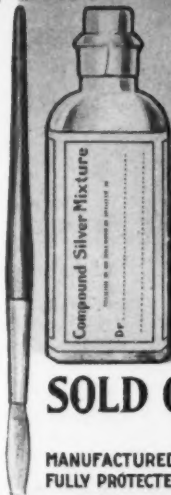
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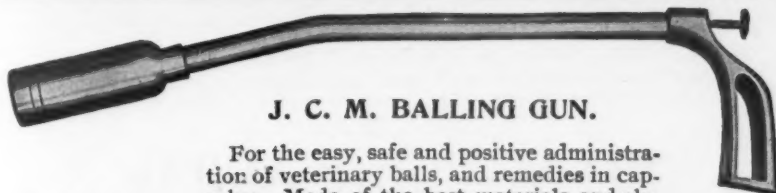
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FIG. B.



FIG. C.

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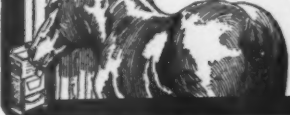
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Our Syringes are substantially made, especially for the use of Veterinary Surgeons, with strong glass barrel of three drachms capacity, protected by fenestrated metal cylinder, with rings for thumb and fingers.

By removal of the lower metal end, one or more tablets may be placed directly in the syringe—replacing cap and attaching needle, water can then be drawn in upon the tablets and solution effected by shaking the syringe.

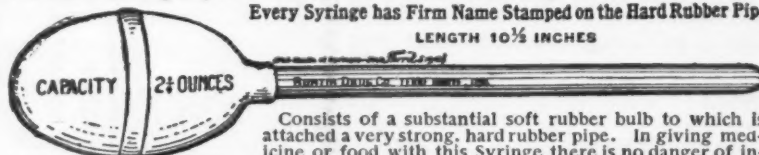
Our syringes are made with needles to attach either by slide or screw-thread. In ordering specify which is preferred.

Price of Syringe and case complete.....	\$5.00
Extra Needles, straight.....	.35
Extra Needles, curved.....	.35
Extra Trocar and Canula.....	.50

NOTE—Advance in metal and leather goods compels us to restore price on our Hypo Syringe and case to former price, \$5.00.

BUNTIN DRUG CO'S VETERINARY BULB SYRINGE

For administering Liquid Medicines to Horses and Cattle by the Mouth or Rectum
Every Syringe has Firm Name Stamped on the Hard Rubber Pipe



Consists of a substantial soft rubber bulb to which is attached a very strong, hard rubber pipe. In giving medicine or food with this Syringe there is no danger of injuring the animal's mouth or breaking the Syringe; any quantity, from a teaspoonful to two ounces may be given at one injection.

BUNTIN DRUG CO., TERRE HAUTE, INDIANA
Manufacturers of Veterinary Hypodermic Tablets and Hypodermic Syringes

(Length 10 $\frac{1}{2}$ inches.)

Prices Bulb Syringes, 75c. each; per half doz., \$4.00; per doz., \$7.50.

BUNTIN DRUG COMPANY,
600 Wabash Avenue **TERRE HAUTE, INDIANA.**
EIMER & AMEND, Agents, 205-211 Third Ave., New York.

BUNTIN DRUG CO.'S SOLUBLE HYPODERMIC TABLETS. VETERINARY.

No.			Per tube of 10 tablets.
114	Aconitine, Crystals.....	1-40 gr.	\$0 12
115	Aconitine, Crystals.....	1-30 gr.	13
100	Aconitine, Crystals.....	1-20 gr.	15
116	Aconitine, Crystals.....	1-10 gr.	17
117	Aconitine, Crystals.....	1- 6 gr.	22
118	Aconitine, Crystals.....	1- 4 gr.	27
159	Arecoline Hydrobrom.....	1/2 gr.	1 00
160	Arecoline Hydrobrom.....	1 gr.	1 80
101	Atropine Sulphate.....	1- 4 gr.	15
121	Atropine Sulphate.....	1- 2 gr.	18
119	Atropine Sulphate.....	1 gr.	33
158	Barium Chloride Comp (Eillis).....		18
	{ Barium Chlor.....	7 grs. }	
	{ Digitaline.....	1-12 gr. }	
152	Cardiac Tonic.....		25
	{ Digitaline, Pure.....	1-10 gr. }	
	{ Sparteine Sulph.....	1- 5 gr. }	
	{ Strychnine, Nitrate.....	1- 8 gr. }	
102	Cocaine Muriate.....	1 gr.	35
134	Cocaine Muriate.....	1-1/2 grs.	45
125	Cocaine Muriate.....	2 grs.	55
120	Cocaine, 4 1/2 grs. for Veterinary Anesthesia.....		1 10
	(One tablet dissolved in 1 drachm of water makes an 8-per cent. solution.)		
103	Colchicine.....	1- 4 gr.	60
136	Colchicine.....	1- 2 gr.	1 00
137	Colic (Knowles).....		65
	{ Morphine Sulph.....	2 grs. }	
	{ Atropine Sulph.....	1- 4 gr. }	
	{ Aconite Cryst.....	1-20 gr. }	
104	Coniine Hydrobromate.....	1- 2 gr.	43
128	Coniine Hydrobromate.....	1 gr.	60
105	Digitaline, Pure.....	1- 8 gr.	20
129	Digitaline, Pure.....	1- 4 gr.	35
156	Ergotine.....	2 grs.	18
157	Ergotine.....	4 grs.	27
113	Eserine Salicylate.....	1- 4 gr.	50
133	Eserine Salicylate.....	1- 2 gr.	75
134	Eserine Salicylate.....	1 gr.	1 25
135	Eserine Salicylate.....	1 1/2 grs.	1 90
106	Eserine Compound.....		1 00
	{ Eserine Salicylate.....	1- 4 gr. }	
	{ Pilocarpine Muriate.....	1- 2 gr. }	
	{ Strychnine.....	1- 8 gr. }	
153	Eserine and Pilocarpine.....		1 50
	{ Eserine.....	1- 2 gr. }	
	{ Pilocarpine.....	1 gr. }	
154	Colic (Forbes).....		2 75
	{ Eserine Salicylate.....	1 gr. }	
	{ Pilocarpine Mur.....	3 1/2 grs. }	
107	Hyoscyamine Sulphate, Crystals.....	1- 8 gr.	1 00
146	Hyoscyamine Sulphate, Crystals.....	1- 4 gr.	1 50
108	Morphine Sulphate.....	1 gr.	25
136	Morphine Sulphate.....	1 1/2 grs.	35
137	Morphine Sulphate.....	2 gr.	40
138	Morphine Sulphate.....	2 1/2 grs.	50
155	Morphine Sulphate.....	3 grs.	60
109	Morphine and Atropine.....		45
	{ Morphine Sulph.....	1 1/2 grs. }	
	{ Atropine Sulph.....	1/2 gr. }	
139	Morphine and Atropine.....		45
	{ Morphine Sulph.....	1 1/2 grs. }	
	{ Atropine Sulph.....	1/2 gr. }	
140	Morphine and Atropine.....		55
	{ Morphine Sulph.....	2 grs. }	
	{ Atropine Sulph.....	1-4 gr. }	
141	Morphine and Atropine.....		60
	{ Morphine Sulph.....	2 1/2 grs. }	
	{ Atropine Sulph.....	1-4 gr. }	
143	Nitroglycerine.....	1-10 gr.	14
143	Nitroglycerine.....	1-5 gr.	17
110	Pilocarpine Muriate, Crystals.....	1-2 gr.	55
144	Pilocarpine Muriate, Crystals.....	1 gr.	90
145	Pilocarpine Muriate, Crystals.....	1 1/2 grs.	1 10
111	Sodium Arsenite.....	1 gr.	12
112	Strychnine Sulphate.....	1-4 gr.	12
147	Strychnine Sulphate.....	1-2 gr.	13
148	Strychnine Sulphate.....	1 gr.	14
149	Veratrine Muriate.....	1-4 gr.	12
150	Veratrine Muriate.....	1-2 gr.	14

Please order by number.

Goods sent post-paid to any part United States or Canada upon receipt of price.

NOTE—Strong advance in opium and its salts compel advance in prices tablets with morphine.

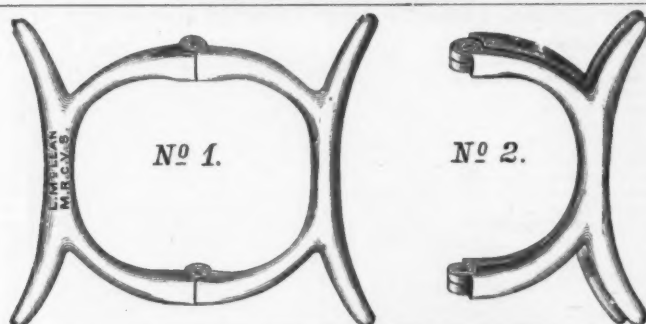
Carbolic Acid, Boric Acid,
Boroglyceride, Sozodolol,
Hydrastine, Sodium Biborate,
Eucalyptol, Thymol.

FORMULA:

Antiseptic, Antizymotic,
Deodorizer and Parasiticide.
SAL-LISTER
(A SOLUBLE POWDER.)
Valuable Surgical Dressing, either dry or in solution.

Dr. L. McLean's Vest Pocket Veterinary Mouth Speculum

PATENTED APRIL 10, 1906.



Commended by the Profession for its simplicity and adaptation for giving medicine in the bolus form, and making a macroscopic and digital examination of the mouth and throat. Price, \$3.00. Agents, Geo. Tiemann & Co., 107 Park Row, New York.

NEW YORK STATE VETERINARY COLLEGE,

ESTABLISHED AT

CORNELL UNIVERSITY, ITHACA, N. Y.

BY CHAPTER 153, LAWS OF 1894.

The best equipment for scientific and practical instruction, for undergraduates and post-graduates. Most varied practice for students in the free clinics. Regular graded course, three years of nine months each. Entrance by Regents' "Veterinary Student Certificate," or by examination, September 17th, 1907. Matriculation September 24th, 1907.

✻ ✻ ✻ Tuition Free to New York State Students.

For extended announcement address,

Professor JAMES LAW, F. R. C. V. S., Director.

ONTARIO VETERINARY COLLEGE, Limited,

40, 42, 44 and 46 TEMPERANCE STREET, TORONTO, CANADA.

Patrons.—Governor-General of Canada and Lieutenant-Governor of Ontario.

SESSION 1907-1908 BEGINS IN OCTOBER

All Experienced Teachers. - - - Fees, \$65.00 per Session.

Prof. SMITH, V.S. (Edin.) F.R.C.V.S., Etc., Principal.

CHICAGO VETERINARY COLLEGE

2537 and 2539 State Street, Chicago, Ills.

Organized and Incorporated under the Laws of the State of Illinois, 1883.

Regular Session commences the first week in October in each year.

For Prospectus giving all information as to curriculum, fees, etc., address the President.

JOSEPH HUGHES, M.R.C.V.S.,

2537 and 2539 State St., Chicago, Ills.

ESTABLISHED 1851.

INCORPORATED 1897

EIMER & AMEND,

Wholesale Druggists,

205, 207, 209 & 211 Third Ave.,
N. Y. CITY.

Make a Specialty of all

Drugs, Extracts,
Tinctures, Chemicals,
etc., etc., used in
Veterinary practice..

E. & A.'s Veterinary
Glycerin Suppositories.

Sulfglycerole for skin
lesions.

Sulfglycerole Oint. for
scratches.



PLANTEN'S

Improved Empty
Veterinary

For Oral and

Rectal Medication.

CAPSULES

ORAL: 1-2, 1, 2, 3, 4, 7, 8 and 12 drachms.

RECTAL: 1 1-2, 1 and 1-2 ounce.

TRIAL BOX
BY MAIL
25 CENTS.

IMPREGNATION CAPSULES for Mares.

Sample Box 30 Cents.

ESTABLISHED IN NEW YORK IN 1836.

H. PLANTEN & SON, 93 Henry St., Brooklyn, N. Y.

"The Pioneer American Capsule House."

Manufacturers of Superior Filled and Empty Gelatine Capsules.

Capsulating Private Formulas a Specialty.

INTRAVENOUS THERAPY

To Veterinarians who have not adopted the **TALLIANINE INTRAVENOUS TREATMENT** for **PNEUMONIA, PURPURA HEMORRHAGICA** and other **SEPTIC CONDITIONS**, we will forward by express, securely packed (charges to be paid by the Veterinarian),

**ONE DOZEN TUBES OF TALLIANINE
AND
ONE STANDARD No. 4 VETERINARY INTRAVENOUS
INJECTING SYRINGE, COMPLETE**

For TEN DOLLARS. Cash to accompany the order.

This offer to the profession is suggested by the fact that many Veterinarians remain unacquainted with **TALLIANINE** by not having means of making satisfactory injections.

The order for the above must come to us **DIRECT**, and be upon the Veterinarians' professional paper, or accompanied by his card.

WALTER F. SYKES & CO.

85 Water Street, New York.

132 Chestnut Street, Philadelphia, Pa.

113 Broad Street, Boston, Mass.

Air-Cushion Rubber Pads

Rubber
horse-Shoe

IDEALISM IN HORSE-SHOEING.
It follows closely nature's scheme
in anatomy and physiology, and is
therefore correct.



Many horses that are lame on
any other pad or shoe will go sound
on Air-Cushion Pads:
There is a reason. "Write us."

Don't be deceived by inferior substitutes.

REVERE RUBBER CO., (Sole Mfrs.)

**Boston, New York, Pittsburg,
Chicago, New Orleans.**

Complete Literature with records of cases upon request

TALLIANINE

TRADE MARK REGISTERED.

Administered by intravenous injections through the jugular vein, and has been demonstrated to be the most rational and positive treatment for Pneumonia, Purpura, etc., and all cases due to a septic condition of the blood.

"TALLIANINE"

— TRADE MARK REGISTERED —

Case No. _____ Surgeon: Dr. William Mock Date: March 26th 1909
 Address: Easton, Pa.

RECORD.		TEMPERATURE		REMARKS.	
Date.	Pulse.	Temp.	Temp.		
25	70	101.8			On March 25 th
26	70	101.8			gave 15 cc Tall-
27	70	101.8			ianine. On the
28	70	101.8			26 th gave 10 cc,
29	70	101.8			on the 27 th 5 cc.
					On the 28 th discharge

Animal: Black Siding
 Owner: Smith & Son, S.
 Location: Pa.
 Age: 5 Weight: 1120 lbs.
 CONDITION: Dist.
 DIAGNOSIS: Congestion of lungs
 TREATMENT: Tallianine
 RESULTS: Cured

WALTER F. SYKES & CO.

PHILADELPHIA NEW YORK BOSTON

To be ordered from all druggists and veterinary supply dealers
 or from the sole agents.

WALTER F. SYKES & CO.,

85 WATER STREET, NEW YORK.

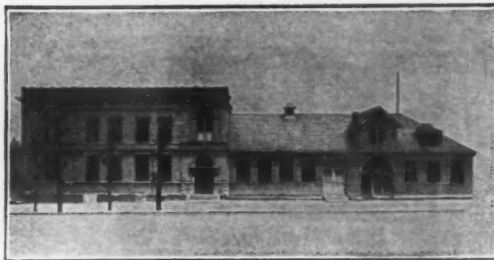
132 Chestnut St., PHILADELPHIA, PA. 113 Broad St., BOSTON, MASS.

WESTERN AGENTS

R. R. STREET & CO., 184 Washington Street, CHICAGO, ILLS.

INDIANA VETERINARY COLLEGE

Chartered by State of Indiana, December 24, 1892.



SESSION BEGINS OCT 1st.

A recent examination held by the Civil Service Commission showed 83 1/2% of the I. V. C. Class successful.

Tuition 1st term \$80, 2nd \$80, 3rd \$90.

Write for Catalogue to

Prof. FERDINAND A. MUELLER, Ph. G., V. S.,
Indianapolis, Ind. **Secretary**

CONKEY EQUINE OPERATING TABLE



This Table has movements necessary for all surgical operations and guaranteed indestructible.

Veterinary Table \$200
Horseshoers Table \$175

For information address
L.L. Conkey, Grand Rapids, Mio.

NOTICE.

A NEW STOMACH TUBE

For use in horses with ACUTE INDIGESTION; one that proves itself a winner in each case where a tube is needed. This tube as with all other instruments is claimed by the originators to be the best, and if demonstrations could be shown to all we are sure they would say it does the work. This tube is double throughout its length—ten feet—made of the best of soft rubber, it having two separate openings or one inlet, the other outlet. The outlet is large enough so that a half kernel of corn can come away easily. The tube is easily passed through the mouth with the use of a speculum.

For any particulars address,

KNISELY & STALLSMITH,
1117-1119 KANSAS AVE., **TOPEKA, KANSAS.**

WORMS in DOGS

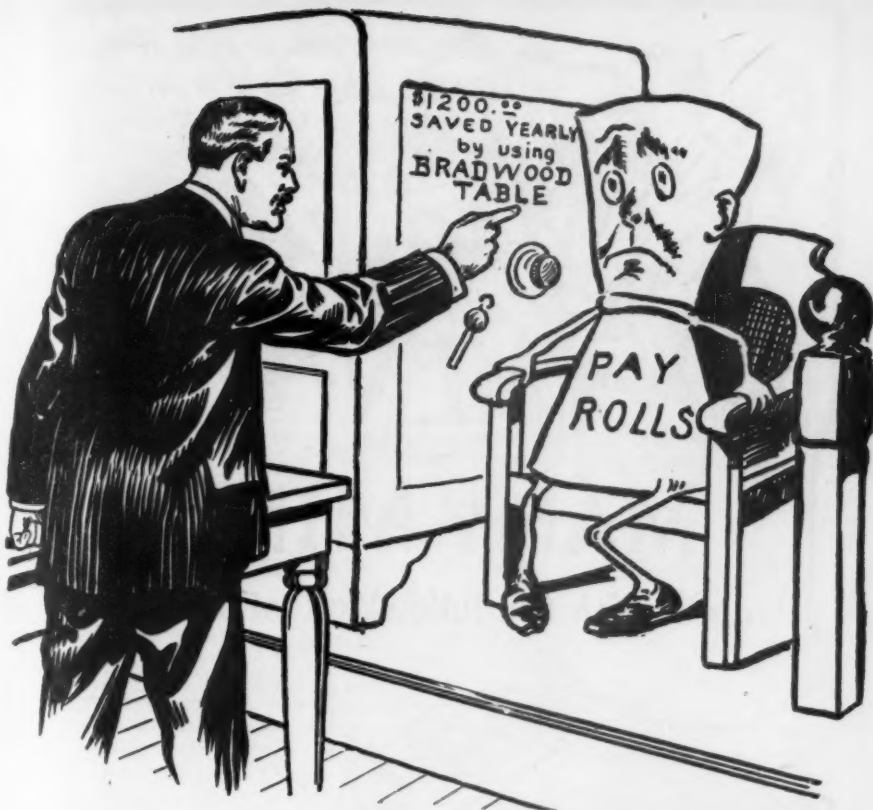
are quickly expelled by "TENALINE. A safe and efficient remedy. No after aperient necessary. Supplied in capsules of various sizes. Literature on application.

Stocked by Messrs. Schieffelin & Co., 170 & 172 William St., New York.

SOLE PROPRIETORS,

WILLOWS, FRANCIS, BUTLER & THOMPSON, Ltd.

40, ALDERSGATE STREET, LONDON.



It is a recognized fact that there is a shortage of veterinarians in the United States. Aid your assistant to start a veterinarian hospital of his own. Save the yearly salary of an assistant, amounting to \$1,200 or more, by purchasing and possessing the Bradwood Humane Equine Operating Table.

THE BRADWOOD MANUFACTURING CO.

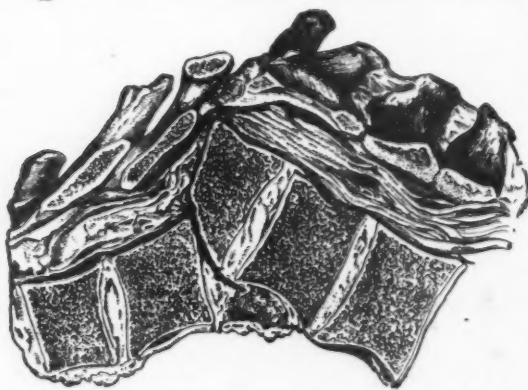
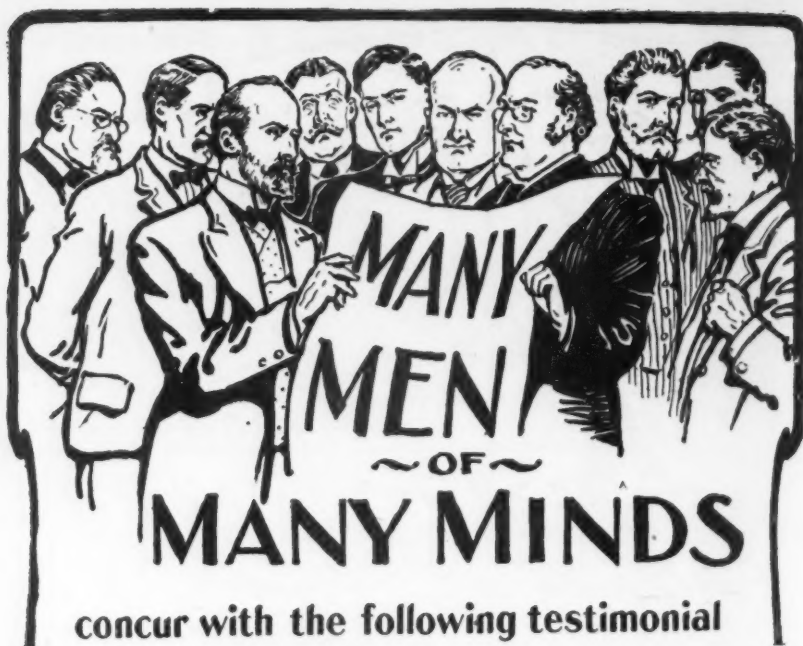


MANUFACTURERS AND LESSORS OF
THE HUMANE EQUINE OPERATING TABLE
OFFICE & FACTORY 125 WATER ST.

New Haven, Conn.

This table can be used as a chair, allowing the patient to rest comfortably on the slings if necessary for several days. Also the table is so arranged that the injured animal can be lifted out of the ambulance by unhooking the ambulance slings, and placing the lifting device of the table with the slings on the animal while the animal is in the ambulance.

The table, when made into such a Humane Veterinary Chair, one side is removed and the veterinary ambulance is backed up to the table and the sling and lifting device of the table is placed on the injured animal as previously described.



The above cut shows a broken backbone of a horse. What a humiliation for a veterinarian to undertake to perform an operation, and break a horse's back by the use of ropes and hobbles. It not only leads to great dissatisfaction on the part of the owner of the animal, but to extreme humiliation on the part of the surgeon and indescribable suffering on the part of the horse. Many surgeons have operated on animals standing, taking the chance of injury to themselves, infecting the horse, and at times injecting strong doses of cocaine to accomplish such procedure. Many veterinarians have been killed in the past few years in trying to operate on horses without using the proper method for surgical restraint. Dr. Switzer, deceased, of Springfield, Mass., with whom we were negotiating for the sale of a Bradwood Humane Equine Operating Table, had the misfortune to receive a blow from a horse's foot, which fractured his skull, and he died instantly. There are several other unfortunate accidents, some terminating fatally, which our correspondence discloses during the past year, where the operator has been injured for life. One instance is the case of a veterinarian surgeon losing an eye, and another of a veterinarian surgeon having a sharp instrument kicked through his hand; still another being kicked a glancing blow on the face, tearing out his cheek, disfiguring him for life.

After going over our long list of correspondence which we have on file, we feel that we should do all within our power to protect both the surgeon and his patient, and we offer this absolutely safe, humane and practically indestructible instrument, the Bradwood Humane Equine Operating Table, on such terms, offering such inducements that every veterinarian can acquire it—indeed, cannot afford to be without this indispensable part of the equipment of the up-to-date veterinary hospital.

We will sell, for a short time, for the sum of \$550, which is practically the cost to manufacture, the Bradwood Humane Equine Operating Table, F. O. B. New Haven, with complete equipment, such as hobbles, slings, etc., ready for immediate use.

that there are no broken back horses when The Bradwood Revolving Operating Table and Chair is used. Veterinarians casting horses with old-fashioned and inadequate devices can be sued and compelled to pay for animals injured from throwing them on the ground when undertaking surgical treatment.

There is no text-book on veterinary surgery written by authority that does not comment on the injury to horses' backs when throwing them with ropes and hobbles.

IRON STAIRS, FIRE ESCAPES,
SIDE WALKS, LIGHTS,
ELEVATOR ENCLOSURES,
RAILINGS AND GRILLES,
TIMBER HANGERS, SHOP CARS,
HAND BOXES, JAPAN OVENS.



P. O. ADDRESS
NEW HAVEN, CONN.
OFFICE AND WORKS
WEST HAVEN, CONN.

WM. CROSSLEY, PRES. AND TREAS.

T. C. BRETT, SEC.

The Yale Safe & Iron Co.

MANUFACTURERS OF
ARCHITECTURAL IRON WORK

New Haven, Conn.

The Bradwood Manufacturing Co., Inc.,
New Haven, Conn.

Gentlemen:-

We will furnish f. o. b., cars on our siding twelve of your Improved Humane Equine Revolving Veterinary Operating Tables for Five Hundred and Fifty Dollars (\$550.00) each. Tables to be the same in all respects as the six we built for you some two years since.

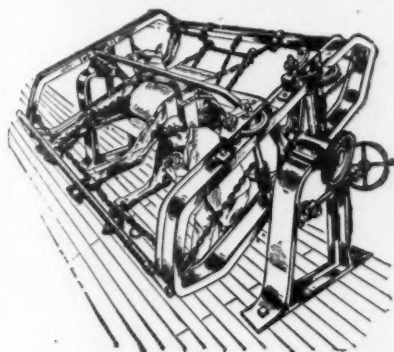
It is understood that your Company is to furnish all patterns for cast, steel or bronze work, and the price being so close we would require cash payment on date of shipment. We could --obably ship about one table per week.

Yours respectfully,

THE YALE SAFE & IRON CO.,

Wm. Crossley PREST.

The above cut shows photograph of estimate received from The Yale Safe and Iron Co. We have furnished this company our working drawings, which were for the best improved Humane Revolving Operating Table. We have not only furnished these drawings for estimates to this company, but to several other large machine manufacturers, and find they cannot build the table with the slings and hoppers for less than \$550. Last year we experimented on building a cheap table, which we could sell for \$350. On assembling one of the tables we found it was not a success, and have abandoned the idea of building a cheap veterinary operating table. To such veterinarians who are the first to purchase a table in a city where we have not previously sold one, we will sell the table for practically cost, including the entire equipment, F. O. B. New Haven,



Conn. It is necessary for us to receive and charge \$50.00 profit to veterinarians desiring to purchase on the installment basis. We would suggest to veterinarians who have graduated from college, and who contemplate buying one of our tables, and wish to raise money to purchase the same, to explain to several large horse owners the advantage of this apparatus as a Humane Veterinary Chair for animals suffering with broken knees, nail punctures and various punctured wounds which necessitate the use of slings for supporting animals and those cases which need surgical operations and surgical daily attention.

The saving of two or three animals which often lie down in dirty stalls and become infected will pay for the combination aseptic Humane Veterinary Chair and Table, and there is scarcely a stock owner in the country who would not advance a little money for such valuable equipment in any desired section, provided the veterinarian was worthy of aid.

To such veterinarians who cannot pay cash we will sell the table on an installment basis. We solicit correspondence and open our hands in sympathy with the veterinarians. We are glad to help all possible in upbuilding the veterinary profession.

This cut shows table turned partly over, surgeon working on the hind leg of an animal.

THE BRADWOOD MFG. CO.,

NEW HAVEN, CONN.

IMPORTANT NEWS TO VETERINARIANS!

THE YALE NATIONAL BANK
OF NEW HAVEN
CONNECTICUT

CONFIDENTIAL INFORMATION

Any statement on the part of The Yale National Bank, by any of its officers, as to the financial condition, standing or reputation of any person, firm or corporation, or as to the character or value of any securities, is opinion only, and given in courtesy, without responsibility on the part of the bank or any of its officers.

February 17th, 1904.

The Railroad Mfg. Co., Inc.

New Haven, Conn.

Gentlemen:-

Replying to your inquiry, the amount of money that you have deposited with us, subject to your checking account up to the present time, has been quite a little amount; we cannot say just how much, in detail, but the account has been a satisfactory one.

We believe your veterinary operating table is a good one, our president having inspected it, and in fact saw several horses humanely handled with it. We should judge it would be something that every veterinary in the country would want.

Very truly yours,

Cashier

E./M.

23rd-25th Sts. & 3rd-Leimington Aves

PRINCIPAL OFFICE

147 EAST 24TH STREET.

**FISS, DOERR & CARROLL
HORSE COMPANY**

LARGEST WAREHOUSE DEALERS IN THE WORLD

New York DEC 8 - 1962

Page to the
author.

Give h

Save time
80

524

National Bank,
New York.

John L.

10

Q. Cam

.....

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Figure 1

The above photograph shows a letter from the Yale National Bank, and photographs of three checks, which were cash payments for tables. We have decided to sell this table for cost for a short time. We feel the professional spirit should predominate instead of the commercial spirit.

THE BRADWOOD MFG. CO., New Haven, Conn.

photographs
to sell this
predominate

It can be inspected by prospective buyers in the following Veterinary Hospitals.

NEW YORK CITY. Dr. J. E.
Ryder's Veterinary Hospital,
155 E. 24th St.

BROOKLYN, NEW YORK.
Drs. McLean & McAuslin's
Veterinary Hospital, 397 Carlton
Avenue; Dr. Elisha Hanshew's
Veterinary Hospital, 125 Carlton
Avenue; Dr. Wm. J. Finn's Veter-
inary Hospital, 285 Jay St.

NEW BRITAIN. Dr. George W. Crowley's Veterinary Hospital.

NEW HAVEN, CONN. Dr. F. G. Atwood's Veterinary Hospital.

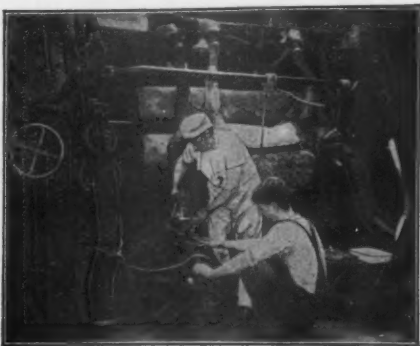
PHILADELPHIA, PA. Dr. Herman H. Weinberg's Veterinary Hospital, 418 Diamond Street.

WASHINGTON, D. C. Dr. C. Barnwell Robinson's Veterinary Hospital, 222 C Street, Washington, D. C.

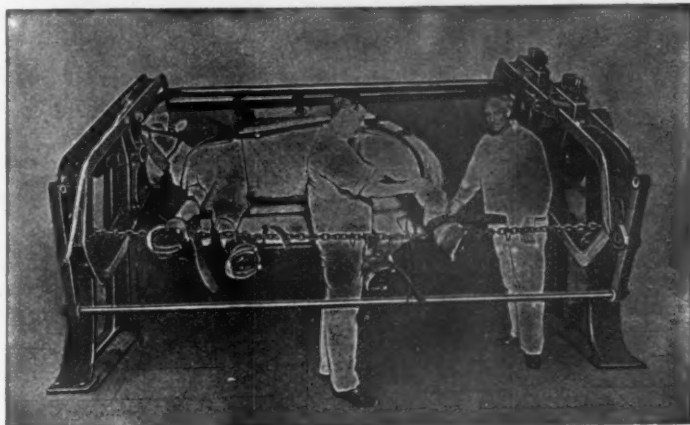
MONTGOMERY, ALABAMA. Dr. S. A. Saul's Veterinary Hospital, 109 N. Lawrence Street.

CHICAGO, ILLINOIS. Prof. M. H. McKillip's Veterinary Hospital, 1639 Wabash Avenue.

ST. LOUIS, MISSOURI. Dr. A. Darling's Veterinary Hospital, 3334 Pine St.
MEMPHIS, TENNESSEE. Dr. Chas. B. Banks, 287 Monroe Street.



ROARING OPERATION.



HORSE PLACED FOR SPAVIN OPERATION.

There are two extension leg and foot attachments, to which the feet can be fastened. This allows the surgeon to remove the chain and bar shown in this cut, and to approach any part of the patient without being hemmed in by machine and animal. One whole side can be removed and this makes a single sided table, having all the advantages of free accessibility to head of animal, by placing horse on table head toward back end.

We have for sale several second-hand flat tables which have been taken in exchange.

CORRESPONDENCE SOLICITED.

THE BRADWOOD MFG. CO.,
125 Water Street. **NEW HAVEN, CONN.**

Valuable Syringe Free!

This valuable aseptic syringe free with an order for twenty ounces of Mistur Muinidor Compound. Prices of this Compound to veterinarians:

1 ounce bottle,	\$1.00	12 ounce bottle,	\$10.00
2 ounce bottle,	2.00	20 ounce bottle,	15.00
6 ounce bottle,	5.00		

Price of syringe, \$5.00. With twenty ounces of the Compound we will include the syringe free. With twelve ounces of the Compound we will include the syringe for \$1.75 extra, if cash accompanies order.

The success of Mistur Muinidor Compound is perpetual. Read copy of letter received from Dr. H. C. Singer, M.D.C., Cowden, Ill.:

October 22nd, 1907.

United States Pharmacal Company, New Haven, Conn.
Gentlemen.—

Please send me six ounces of your Mistur Muinidor Compound. I have tried one ounce and it does just what you claim. Enclosed please find check for \$5.00 for six ounces. Please ship same immediately and oblige, I am,

Yours very respectfully,

(Signed) H. C. SINGER, M.D.C.

Every day fastens a new series of cures to its crowded record of achievements. Copy of letter received from The Yale Veterinary College Hospital, New Haven, Conn.:

November 4th, 1907.

United States Pharmacal Company,
New Haven, Conn.

Dear Sirs:—

We have used your Compound in the past three months, on a number of Spavins. We find the same works very satisfactorily, especially on incipient spavins which have never been fired or blistered, one being on a six-year-old valuable coach horse of which we herewith enclose you photograph. This animal the owner objected very much having blemished from the cautery point or firing iron.

To be frank with you we did not have a great deal of faith in curing a spavin with a hyperdermic injection. This particular case was one which was on a young animal and the gelding was extremely lame. The enlargement was small. When the animal's hock was flexed and held for a few seconds the animal would hobble along on three legs, which proved that the spavin was a bad one and of the occult kind. Four draughts of your Compound was injected under the skin, which caused considerable swelling. Four days after the injection we took a curved needle and placed a small sized seaton through the swelling and over the spavin, which is shown in photograph. This allowed a slight amount of serum to ooze out. Same was washed with antiseptic and will say that there was no hair disturbed from the animal's hock, and same remained during the treatment.

The seaton was allowed to remain for ten days, same being dressed antiseptically, and the animal stood in a straight stall and not allowed to lay down. On removing the seaton the animal's hock was bathed twice daily with antiseptic solution and the animal allowed to remain ten



days longer in the straight stall tied so that it could not lay down.

Twenty days after the injection the animal was trotted out and handled the limb nearly sound, showing scarcely any blemish. It being a valuable animal we recommended a further rest of four weeks. Then the animal was shod with a shoe slightly elevated at the heels and rolled slightly on the inside of toe. The animal has been working sound for several weeks past. The owner can not speak too highly of the treatment. We shall have to endorse your compound as being a valuable remedy; still, we must emphasize that the seaton and rest aided your compound considerable in bringing about this cure.

Under ordinary circumstances we should have fired the horse and blistered him in place of injecting the compound. This would necessarily mark the horse's hock for life and would have been an eyesore to the owner. With the use of your compound we have overcome this, for at the present time the animal would pass a very rigid veterinary examination and in many cases would be passed as a sound animal.

The two small places which were left from the seaton have haired out and are not noticeable. We have used your compound on curbs, splints, enlarged tendons, sheath, Bursitis capped elbow, capped hock, etc., painted on once daily with brush, with very gratifying success.

Thanking you for the samples which you have furnished us with, we are,

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ON valuable animals which owners object to have branded with the cautery or firing iron, and on those desperate cases pronounced incurable, on young and on the old, for incipient and chronic ailments, Mistur Muinidor Compound scores in a lasting triumph. There are no curative properties in a red hot iron. Firing never did and never will repair an injury. To fire a horse causes a blemish and an injury for life. One injury will not medicate another injury. Mistur Muinidor Compound is the latest and most powerful absorbent discovered. When injected under the skin over the diseased part causes rapid absorption and speedy relief to deep seated spavins. For splints, curbs, large tendons, ring-bones, side-bones, large glands, shoe-boils, etc., it may be applied with a brush, but for such an ailment as a spavin we recommend injecting same with a hyperdermic syringe, using from two to four drams, care being taken not to puncture a vein or to open the hock joint.

When inserting the needle we believe in inserting the same from the lower part of the spavin upward under the skin, as shown in accompanying photograph. The remarkable fact of not blemishing an animal, to many owners, is appreciated beyond question. It is a feather in the veterinarian's hat when he can cure a spavin with an operation performed with a hyperdermic syringe, being performed by a competent and qualified veterinarian, same being performed under antiseptic precautions, that is, the needle should be clean and the horse's leg should be washed with antiseptics before making an injection. If a seaton is used the same antiseptic precautions should be used as in all operations. There are on record many cases of infection blood poison and even lock jaw following the use of the firing iron or cautery.

While our compound is an antiseptic itself which no germ can live in, still we recommend using all precautions when injecting same hyperdermically, as many germs contained on a horse's skin often are the surgeon's enemies. With the skillful technic of an educated veterinarian we are confident that same will prove a success in the majority of cases. It has met, in the hands of many, a great success in punctured nail wounds by placing a few drops in the hole after same has been cleansed with antiseptics, thus preventing the extreme inflammation which often follows after punctures, es-



Four days after injection.



Side view six weeks after injection.



Back view six weeks after injection.

pecially those cases which the surgeon desires to treat for a few days before operating. If it be a puncture with an open navicular joint we would advise the latest surgical interference, and not depend on any medication without the operation.

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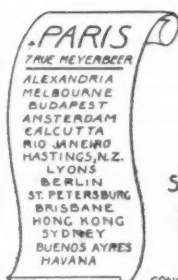
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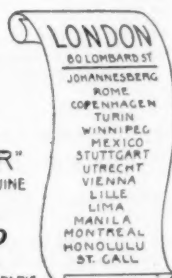


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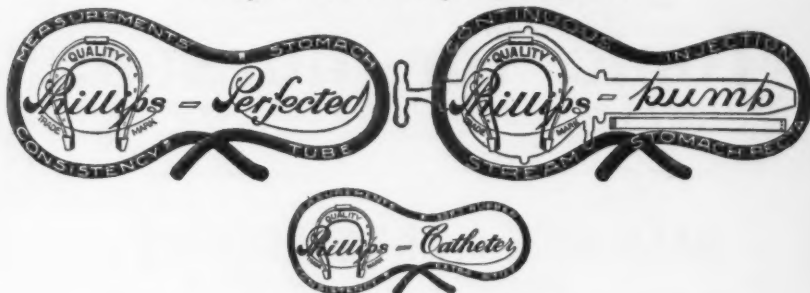
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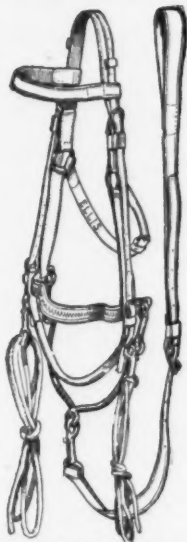
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"Combination" Veterinary Dental and Surgical Halter.



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The features which make it the halter par excellence for operations upon the teeth are, A, the "lip strap," to which the pillar or side reins are attached, which suspend the head at the proper height, and prevent it from going to one side or the other, and B, the non-compressible, metal, heavily padded "nose band," with offsets, keeping the cheek pieces of the halter $2\frac{1}{2}$ to 3 inches from the cheeks, thus avoiding any interference whatever with the dental instruments while being employed upon the teeth. This excellent adjunct to the Veterinarian's outfit, is made of the very finest of russet stock, with brass mountings throughout. The cheek pieces are very strong, being double; the lip strap is covered with fine white rubber; the strap buckling into it being finished rawhide. The piece into which the substantial martingale is snapped, is of forged steel, heavily coated with aluminum enamel, which is rust proof. Altogether, it is a handsome, and from a practical standpoint, indispensable appliance in veterinary dentistry.

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(For side-lines, 5 yards sash-cord, cut in two, snaps on one end.)

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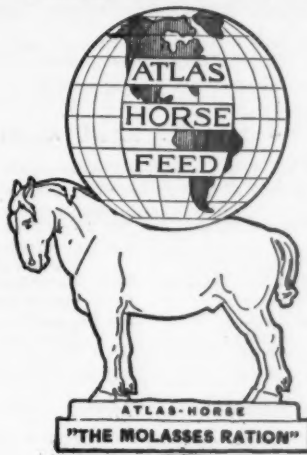
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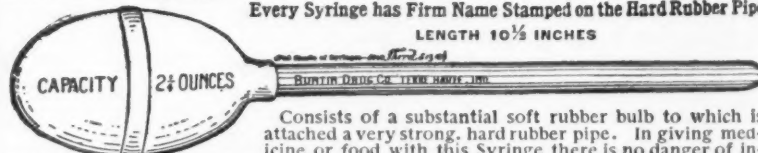
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For administering Liquid Medicines to Horses and Cattle by the Mouth or Rectum
Every Syringe has Firm Name Stamped on the Hard Rubber Pipe



Consists of a substantial soft rubber bulb to which is attached a very strong, hard rubber pipe. In giving medicine or food with this Syringe there is no danger of injuring the animal's mouth or breaking the Syringe; any quantity, from a teaspoonful to two ounces may be given at one injection.

BUNTIN DRUG CO., TERRE HAUTE, INDIANA
Manufacturers of Veterinary Hypodermic Tablets and Hypodermic Syringes

(Length 10½ inches.)

Prices Bulb Syringes, 75c. each; per half doz., \$4.00; per doz., \$7.50.

BUNTIN DRUG COMPANY,
600 Wabash Avenue TERRE HAUTE, INDIANA.

EIMER & AMEND, Agents, 205-211 Third Ave., New York.

BUNTIN DRUG CO.'S SOLUBLE HYPODERMIC TABLETS. VETERINARY.

No.		Per tube of 10 tablets.
114	Aconitine, Crystals.....	1-40 gr. \$0 12
115	Aconitine, Crystals.....	1-30 gr. 13
100	Aconitine, Crystals.....	1-20 gr. 15
116	Aconitine, Crystals.....	1-10 gr. 17
117	Aconitine, Crystals.....	1-6 gr. 22
118	Aconitine, Crystals.....	1-4 gr. 27
159	Arecoline Hydrobrom.....	1/2 gr. 1 00
160	Arecoline Hydrobrom.....	1 gr. 1 80
101	Atropine Sulphate.....	1-4 gr. 15
121	Atropine Sulphate.....	1-2 gr. 18
119	Atropine Sulphate.....	1 gr. 33
158	Barium Chloride Comp (Ellis).....	18
	{ Barium Chlor..... 7 grs. }	
	{ Digitaline..... 1-12 gr. }	
152	Cardiac Tonic.....	25
	{ Digitaline, Pure..... 1-10 gr. }	
	{ Sparteine Sulph..... 1-5 gr. }	
	{ Strychnine, Nitrate..... 1-8 gr. }	
102	Cocaine Muriate.....	1 gr. 35
124	Cocaine Muriate.....	1-1/2 grs. 45
125	Cocaine Muriate.....	2 grs. 55
120	Cocaine, 4 3/4 grs. for Veterinary Anesthesia.....	1 10
	(One tablet dissolved in 1 drachm of water makes an 8-per cent. solution.)	
103	Colchicine.....	1-4 gr. 60
126	Colchicine.....	1-2 gr. 1 00
127	Colic (Knowles).....	65
	{ Morphine Sulph..... 2 grs. }	
	{ Atropine Sulph..... 1-4 gr. }	
	{ Aconite Cryst..... 1-20 gr. }	
104	Conine Hydrobromate.....	1-2 gr. 43
128	Conine Hydrobromate.....	1 gr. 60
105	Digitaline, Pure.....	1-8 gr. 20
129	Digitaline, Pure.....	1-4 gr. 35
156	Ergotine.....	2 grs. 18
157	Ergotine.....	4 grs. 27
113	Eserine Salicylate.....	1-4 gr. 50
133	Eserine Salicylate.....	1-2 gr. 75
134	Eserine Salicylate.....	1 gr. 1 25
135	Eserine Salicylate.....	1 1/2 grs. 1 50
106	Eserine Compound.....	1 00
	{ Eserine Salicylate..... 1-4 gr. }	
	{ Pilocarpine Muriate..... 1-2 gr. }	
	{ Strychnine..... 1-8 gr. }	
153	Eserine and Pilocarpine.....	1 50
	{ Eserine..... 1-2 gr. }	
	{ Pilocarpine..... 1 gr. }	
154	Colic (Forbes).....	2 75
	{ Eserine Salicylate..... 1 gr. }	
	{ Pilocarpine Mur..... 3 1/2 grs. }	
107	Hyoscyamine Sulphate, Crystals.....	1-8 gr. 1 00
146	Hyoscyamine Sulphate, Crystals.....	1-4 gr. 1 50
108	Morphine Sulphate.....	1 gr. 25
136	Morphine Sulphate.....	1 1/2 grs. 35
137	Morphine Sulphate.....	2 gr. 40
138	Morphine Sulphate.....	2 1/2 grs. 50
155	Morphine Sulphate.....	3 grs. 60
109	Morphine and Atropine.....	45
	{ Morphine Sulph..... 1 1/2 grs. }	
	{ Atropine Sulph..... 1/2 gr. }	
139	Morphine and Atropine.....	45
	{ Morphine Sulph..... 1 1/2 grs. }	
	{ Atropine Sulph..... 1/2 gr. }	
140	Morphine and Atropine.....	55
	{ Morphine Sulph..... 2 grs. }	
	{ Atropine Sulph..... 1-4 gr. }	
141	Morphine and Atropine.....	60
	{ Morphine Sulph..... 2 1/2 grs. }	
	{ Atropine Sulph..... 1-4 gr. }	
142	Nitroglycerine.....	1-10 gr. 14
143	Nitroglycerine.....	1-5 gr. 17
110	Pilocarpine Muriate, Crystals.....	1-2 gr. 55
144	Pilocarpine Muriate, Crystals.....	1 gr. 90
145	Pilocarpine Muriate, Crystals.....	1 1/2 grs. 1 10
111	Sodium Arsenite.....	1 gr. 12
112	Strychnine Sulphate.....	1-4 gr. 12
147	Strychnine Sulphate.....	1-2 gr. 13
148	Strychnine Sulphate.....	1 gr. 14
149	Veratrine Muriate.....	1-4 gr. 12
150	Veratrine Muriate.....	1-2 gr. 14

Please order by number.

Goods sent post-paid to any part United States or Canada upon receipt of price.

NOTE—Strong advance in opium and its salts compel advance in prices tablets with morphine.

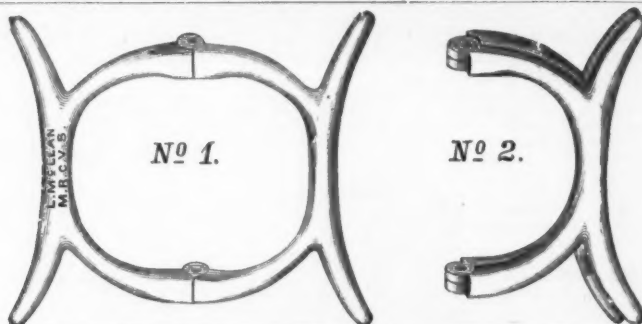
Carbolic Acid, Boric Acid,
Boroglyceride, Sorelitol,
Hydrastine, Sodium Biborate,
Eucalyptol, Thymol.

FORMULA:

Antiseptic, Antizymotic,
Deodorizer and Parasiticide.

SAL-LISTER
(A SOLUBLE POWDER.)
Valuable Surgical Dressing, either dry or in solution.

Dr. L. McLean's Vest Pocket Veterinary Mouth Speculum
PATENTED APRIL 10, 1906.



Commended by the Profession for its simplicity and adaptation for giving medicine in the bolus form, and making a macroscopic and digital examination of the mouth and throat. Price, \$3.00. Agents, Geo. Tiemann & Co., 107 Park Row, New York.

NEW YORK STATE VETERINARY COLLEGE,
ESTABLISHED AT
CORNELL UNIVERSITY, ITHACA, N. Y.
BY CHAPTER 153, LAWS OF 1894.

The best equipment for scientific and practical instruction, for undergraduates and post-graduates. Most varied practice for students in the free clinics. Regular graded course, three years of nine months each. Entrance by Regents' "Veterinary Student Certificate," or by examination, September 17th, 1907. Matriculation September 24th, 1907.

*** Tuition Free to New York State Students.

For extended announcement address,

Professor JAMES LAW, F. R. C. V. S., Director.

ONTARIO VETERINARY COLLEGE, Limited,

40, 42, 44 and 46 TEMPERANCE STREET, TORONTO, CANADA.

Patrons.—Governor-General of Canada and Lieutenant-Governor of Ontario.

SESSION 1907-1908 BEGINS IN OCTOBER

All Experienced Teachers. - - - Fees, \$65.00 per Session.

Prof. SMITH, V.S. (Edin.) F.R.C.V.S., Etc., Principal.

CHICAGO VETERINARY COLLEGE

2537 and 2539 State Street, Chicago, Ills.

Organized and Incorporated under the Laws of the State of Illinois, 1883.

Regular Session commences the first week in October in each year.

For Prospectus giving all information as to curriculum, fees, etc., address the President.

JOSEPH HUGHES, M.R.C.V.S.,

2537 and 2539 State St., Chicago, Illa

ESTABLISHED 1851.

INCORPORATED 1897

EIMER & AMEND,

Wholesale Druggists,

205, 207, 209 & 211 Third Ave.,
N. Y. CITY.

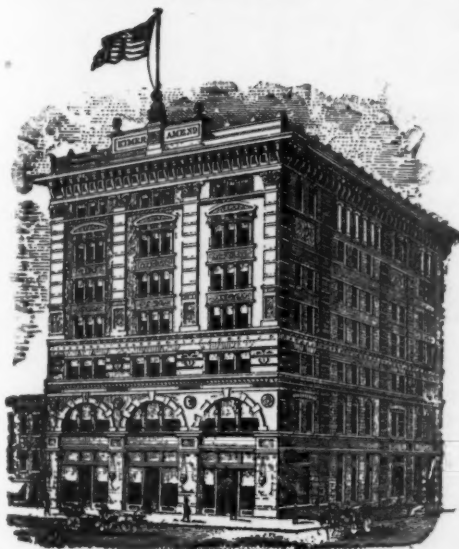
Make a Specialty of all

Drugs, Extracts,
Tinctures, Chemicals,
etc., etc., used in
Veterinary practice..

E. & A.'s Veterinary
Glycerin Suppositories.

Sulfglycerole for skin
lesions.

Sulfglycerole Oint. for
scratches.



PLANTEN'S

Improved Empty
Veterinary

For Oral and

Rectal Medication.

CAPSULES

ORAL: 1-2, 1, 2, 3, 4, 7, 8 and 12 drachms.

RECTAL: 1 1-2, 1 and 1-2 ounce.

} TRIAL BOX
BY MAIL
25 CENTS.

IMPREGNATION CAPSULES for Mares.

Sample Box 30 Cents.

ESTABLISHED IN NEW YORK IN 1836.

H. PLANTEN & SON, 93 Henry St., Brooklyn, N. Y.

"The Pioneer American Capsule House."

Manufacturers of Superior Filled and Empty Gelatine Capsules.

Capsulating Private Formulas a Specialty.

INTRAVENOUS THERAPY

To Veterinarians who have not adopted the **TALLIANINE INTRAVENOUS TREATMENT** for **PNEUMONIA, PURPURA HEMORRHAGICA** and other **SEPTIC CONDITIONS**, we will forward by express, securely packed charges to be paid by the Veterinarian),

**ONE DOZEN TUBES OF TALLIANINE
AND
ONE STANDARD No. 4 VETERINARY INTRAVENOUS
INJECTING SYRINGE, COMPLETE**

For TEN DOLLARS. Cash to accompany the order.

This offer to the profession is suggested by the fact that many Veterinarians remain unacquainted with **TALLIANINE** by not having means of making satisfactory injections.

The order for the above must come to us **DIRECT**, and be upon the Veterinarians' professional paper, or accompanied by his card.

WALTER F. SYKES & CO.

85 Water Street, New York.

132 Chestnut Street, Philadelphia, Pa.

113 Broad Street, Boston, Mass.

Air-Cushion Rubber horse-Shoe Pads

IDEALISM IN HORSE-SHOEING.
It follows closely nature's scheme in anatomy and physiology, and is therefore correct.



Many horses that are lame on any other pad or shoe will go sound on Air-Cushion Pads.
There is a reason. "Write us."

Don't be deceived by inferior substitutes.

REVERE RUBBER CO., (Sole Mfrs.) Boston, New York, Pittsburg,
Chicago, New Orleans.

Complete Literature with records of cases upon request

TALLIANINE

TRADE MARK REGISTERED.

Administered by intravenous injections through the jugular vein, and has been demonstrated to be the most rational and positive treatment for Pneumonia, Purpura, etc., and all cases due to a septic condition of the blood.

"TALLIANINE"

— TRADE MARK REGISTERED —

Case No. _____ Surgeon: *Dr. William Mock* Date: *March 25th 1908*
 Address: *Easton, Pa.*

RECORD.		Date		Pulse		Temp		Remarks	
		25	26	27	28	29	30	31	32
Animal: <i>Black Siding</i>									
Owner: <i>Chick's Siding</i>									
Location: <i>Easton, Pa.</i>									
Age: <i>5</i> Weight: <i>1190</i> lbs.									
CONDITION.									
<i>Pet.</i>									
DIAGNOSIS.									
<i>Congestion of lungs</i>									
TREATMENT.									
<i>Tallianine</i>									
RESULTS.									
<i>leaved</i>									

TEMPERATURE

108°
107°
106°
105°
104°
103°
102°
101°
100°
99°

WALTER F. SYKES & CO.
 PHILADELPHIA NEW YORK BOSTON

To be ordered from all druggists and veterinary supply dealers
 or from the sole agents.

WALTER F. SYKES & CO.,
85 WATER STREET, NEW YORK.

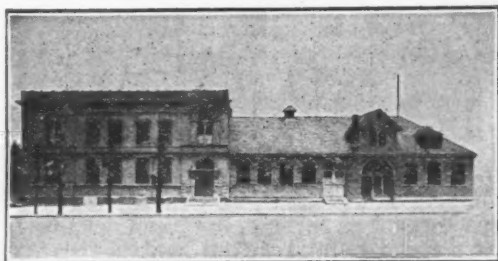
132 Chestnut St., PHILADELPHIA, PA. 113 Broad St., BOSTON, MASS.

WESTERN AGENTS

R. R. STREET & CO., 184 Washington Street, CHICAGO, ILLS.

INDIANA VETERINARY COLLEGE

Chartered by State of Indiana, December 24, 1892.



SESSION BEGINS OCT 1st.

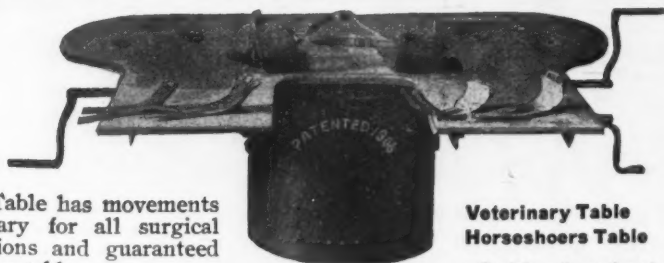
A recent examination held by the Civil Service Commission showed 83 1/2% of the I. V. C. Class successful.

Tuition 1st term \$80, 2nd \$80, 3rd \$90.

Write for Catalogue to

Prof. FERDINAND A. MUELLER, Ph. G., V. S.,
Indianapolis, Ind. **Secretary**

SIMPLICITY EQUINE OPERATING TABLE



This Table has movements necessary for all surgical operations and guaranteed indestructable.

Veterinary Table \$200
Horseshoers Table \$175

—For information and catalog address—

Veterinary Specialty Manufacturing Co., Grand Rapids, Michigan

NOTICE.

A NEW STOMACH TUBE

For use in horses with ACUTE INDIGESTION; one that proves itself a winner in each case where a tube is needed. This tube as with all other instruments is claimed by the originators to be the best, and if demonstrations could be shown to all we are sure they would say it does the work. This tube is double throughout its length—ten feet—made of the best of soft rubber, it having two separate openings or one inlet, the other outlet. The outlet is large enough so that a half kernel of corn can come away easily. The tube is easily passed through the mouth with the use of a speculum.

For any particulars address,

KNISELY & STALLSMITH,
1117-1119 KANSAS AVE., **TOPEKA, KANSAS.**

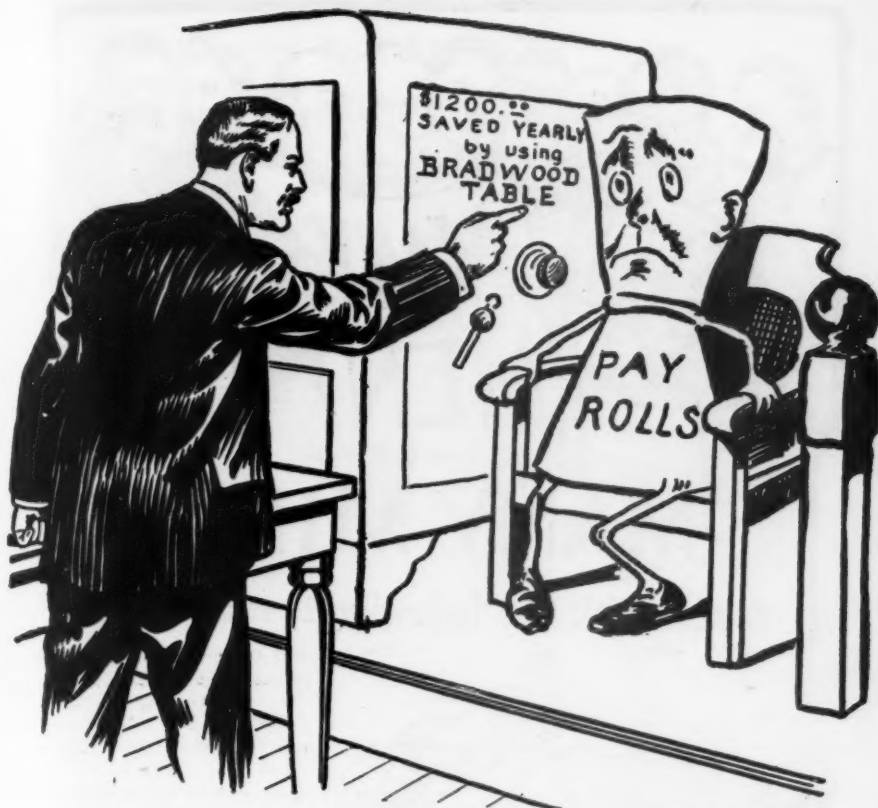
WORMS in DOGS

are quickly expelled by "TENALINE" A safe and efficient remedy. No after aperient necessary. Supplied in capsules of various sizes. Literature on application.

Stocked by Messrs. Schieffelin & Co., 170 & 172 William St., New York.

SOLE PROPRIETORS,

WILLOWS, FRANCIS, BUTLER & THOMPSON, Ltd.
40, ALDERSGATE STREET, LONDON.



It is a recognized fact that there is a shortage of veterinarians in the United States. Aid your assistant to start a veterinarian hospital of his own. Save the yearly salary of an assistant, amounting to \$1,200 or more, by purchasing and possessing the Bradwood Humane Equine Operating Table.

THE BRADWOOD MANUFACTURING CO.

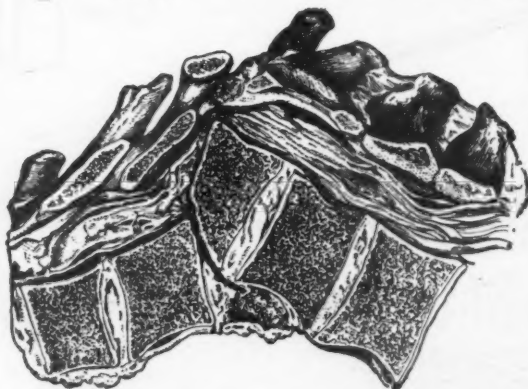
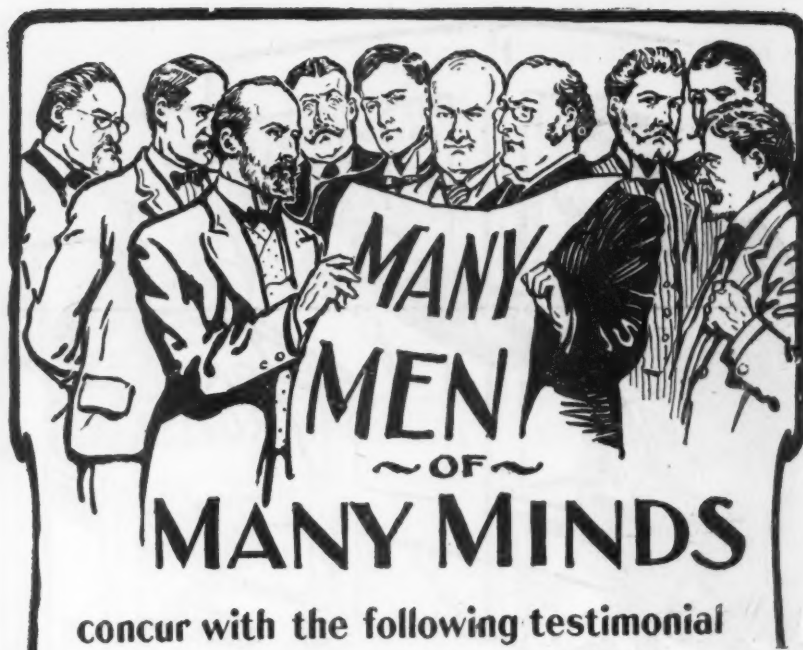


MANUFACTURERS AND LESSORS OF
THE HUMANE EQUINE OPERATING TABLE
 OFFICE & FACTORY 125 WATER ST.

New Haven, Conn.

This table can be used as a chair, allowing the patient to rest comfortably on the slings if necessary for several days. Also the table is so arranged that the injured animal can be lifted out of the ambulance by unhooking the ambulance slings, and placing the lifting device of the table with the slings on the animal while the animal is in the ambulance.

The table, when made into such a Humane Veterinary Chair, one side is removed and the veterinary ambulance is backed up to the table and the sling and lifting device of the table is placed on the injured animal as previously described.



that there are no broken back horses when The Bradwood Revolving Operating Table and Chair is used. Veterinarians casting horses with old-fashioned and inadequate devices can be sued and compelled to pay for animals injured from throwing them on the ground when undertaking surgical treatment.

There is no text-book on veterinary surgery written by authority that does not comment on the injury to horses' backs when throwing them with ropes and hobbles.

The above cut shows a broken backbone of a horse. What a humiliation for a veterinarian to undertake to perform an operation, and break a horse's back by the use of ropes and hobbles. It not only leads to great dissatisfaction on the part of the owner of the animal, but to extreme humiliation on the part of the surgeon and indescribable suffering on the part of the horse. Many surgeons have operated on animals standing, taking the chance of injury to themselves, infecting the horse, and at times injecting strong doses of cocaine to accomplish such procedure. Many veterinarians have been killed in the past few years in trying to operate on horses without using the proper method for surgical restraint. Dr. Switzer, deceased, of Springfield, Mass., with whom we were negotiating for the sale of a Bradwood Humane Equine Operating Table, had the misfortune to receive a blow from a horse's foot, which fractured his skull, and he died instantly. There are several other unfortunate accidents, some terminating fatally, which our correspondence discloses during the past year, where the operator has been injured for life. One instance is the case of a veterinarian surgeon losing an eye, and another of a veterinarian surgeon having a sharp instrument kicked through his hand; still another being kicked a glancing blow on the face, tearing out his cheek, disfiguring him for life.

After going over our long list of correspondence which we have on file, we feel that we should do all within our power to protect both the surgeon and his patient, and we offer this absolutely safe, humane and practically indestructible instrument, the Bradwood Humane Equine Operating Table, on such terms, offering such inducements that every veterinarian can acquire it—indeed, cannot afford to be without this indispensable part of the equipment of the up-to-date veterinary hospital.

We will sell, for a short time, for the sum of \$550, which is practically the cost to manufacture, the Bradwood Humane Equine Operating Table, F. O. B. New Haven, with complete equipment, such as hobbles, slings, etc., ready for immediate use.

IRON STAIRS, FIRE ESCAPES,
SIDE WALK LIGHTS,
BEAMS AND COLUMNS,
ELEVATOR ENCLOSURES,
RAILINGS AND GRILLES,
TIMBER HANGERS SHOP CARS,
HAND BOXES, JAPAN OVENS.

WM. CROSSLEY, PRES. AND TREAS.

T. C. BRETT, SEC.

The Yale Safe & Iron Co.

MANUFACTURERS OF
ARCHITECTURAL IRON WORK

New Haven, Conn.

The Bradwood Manufacturing Co., Inc.,
New Haven, Conn.

Gentlemen:-

We will furnish f. o. b., cars on our siding twelve of your Improved Humane Equine Revolving Veterinary Operating Tables for Five Hundred and Fifty Dollars (\$550.00) each. Tables to be the same in all respects as the six we built for you some two years since.

It is understood that your Company is to furnish all patterns for cast, steel or bronze work, and the price being so close we would require cash payment on date of shipment. We could probably ship about one table per week.

Yours respectfully,

THE YALE SAFE & IRON CO.,

Wm. Crossley PRES.

The above cut shows photograph of estimate received from The Yale Safe and Iron Co. We have furnished this company our working drawings, which were for the best improved Humane Revolving Operating Table. We have not only furnished these drawings for estimates to this company, but to several other large machine manufacturers, and find they cannot build the table with the slings and hoppers for less than \$550. Last year we experimented on building a cheap table, which we could sell for \$350. On assembling one of the tables we found it was not a success, and have abandoned the idea of building a cheap veterinary operating table. To such veterinarians who are the first to purchase a table in a city where we have not previously sold one, we will sell the table for practically cost, including the entire equipment, F. O. B. New Haven,

Conn. It is necessary for us to receive and charge \$50.00 profit to veterinarians desiring to purchase on the installment basis. We would suggest to veterinarians who have graduated from college, and who contemplate buying one of our tables, and wish to raise money to purchase the same, to explain to several large horse owners the advantage of this apparatus as a Humane Veterinary Chair for animals suffering with broken knees, nail punctures and various punctured wounds which necessitate the use of slings for supporting animals and those cases which need surgical operations and surgical daily attention.

The saving of two or three animals which often lie down in dirty stalls and become infected will pay for the combination aseptic Humane Veterinary Chair and Table, and there is scarcely a stock owner in the country who would not advance a little money for such valuable equipment in any desired section, provided the veterinarian was worthy of aid.

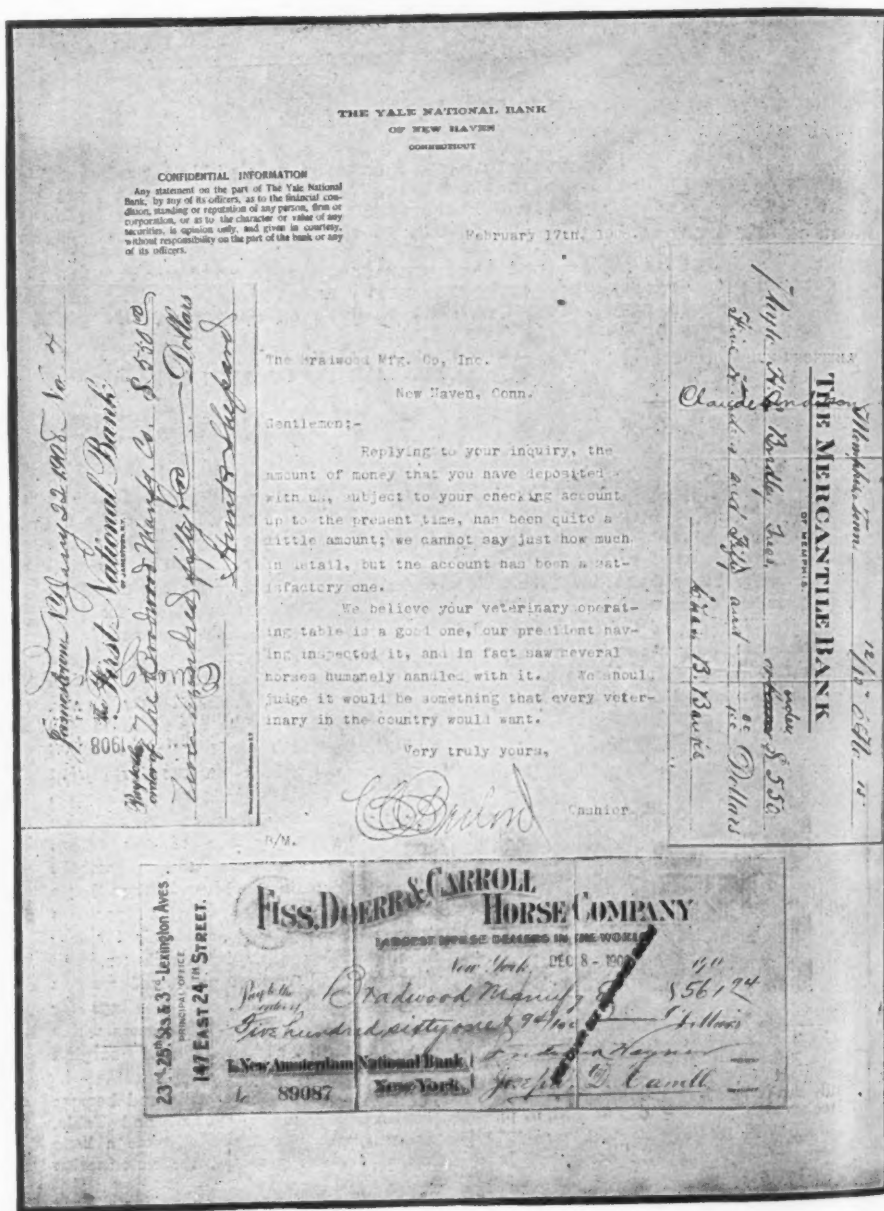
To such veterinarians who cannot pay cash we will sell the table on an installment basis. We solicit correspondence and open our hands in sympathy with the veterinarians. We are glad to help all possible in upbuilding the veterinary profession.

This cut shows table turned partly over, surgeon working on the hind leg of an animal.

THE BRADWOOD MFG. CO.,

NEW HAVEN, CONN.

IMPORTANT NEWS TO VETERINARIANS!



The above photograph shows a letter from the Yale National Bank, and photographs of three checks, which were cash payments for tables. We have decided to sell this table for cost for a short time. We feel the professional spirit should predominate instead of the commercial spirit.

THE BRADWOOD MFG. CO., New Haven, Conn.

NS!

THE MERCANTILE BANK

tographs
sell this
dominate

The Humane Equine Revolving Veterinary Operating Table is fast making its way across the Continent.

It can be inspected by prospective buyers in the following Veterinary Hospitals.

NEW YORK CITY. Dr. J. E. Ryder's Veterinary Hospital, 155 E. 24th St.

BROOKLYN, NEW YORK. Drs. McLean & McAuslin's Veterinary Hospital, 397 Carlton Avenue; Dr. Elisha Hanshaw's Veterinary Hospital, 125 Carlton Avenue; Dr. Wm. J. Finn's Veterinary Hospital, 285 Jay St.

NEW BRITAIN. Dr. George W. Crowley's Veterinary Hospital.

NEW HAVEN, CONN. Dr. F. G. Atwood's Veterinary Hospital.

PHILADELPHIA, PA. Dr. Herman H. Weinberg's Veterinary Hospital, 418 Diamond Street.

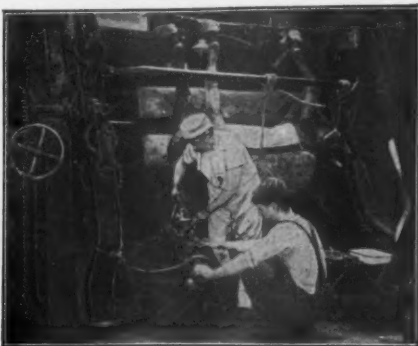
WASHINGTON, D. C. Dr. C. Barnwell Robinson's Veterinary Hospital, 222 C Street, Washington, D. C.

MONTGOMERY, ALABAMA. Dr. S. A. Saul's Veterinary Hospital, 109 N. Lawrence Street.

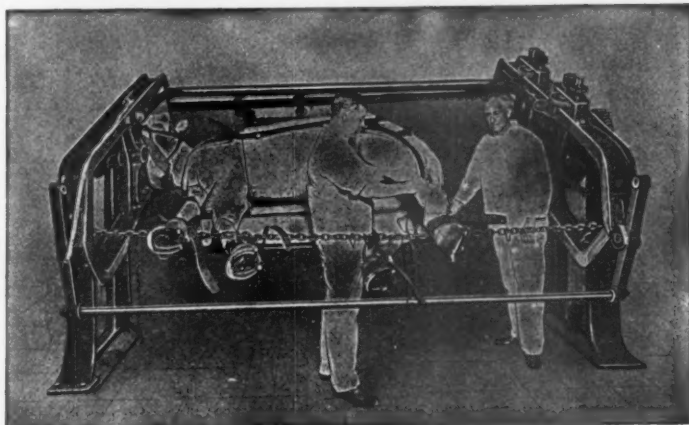
CHICAGO, ILLINOIS. Prof. M. H. McKillip's Veterinary Hospital, 1639 Wabash Avenue.

ST. LOUIS, MISSOURI. Dr. A. Darling's Veterinary Hospital, 3334 Pine St.

MEMPHIS, TENNESSEE. Dr. Chas. B. Banks, 287 Monroe Street.



ROARING OPERATION.



HORSE PLACED FOR SPAVIN OPERATION.

There are two extension leg and foot attachments, to which the feet can be fastened. This allows the surgeon to remove the chain and bar shown in this cut, and to approach any part of the patient without being hemmed in by machine and animal. One whole side can be removed and this makes a single sided table, having all the advantages of free accessibility to head of animal, by placing horse on table head toward back end.

We have for sale several second-hand flat tables which have been taken in exchange.

CORRESPONDENCE SOLICITED.

THE BRADWOOD MFG. CO.,
125 Water Street, NEW HAVEN, CONN.

Valuable Syringe Free!

This valuable aseptic syringe free with an order for twenty ounces of Mistur Muinidor Compound. Prices of this Compound to veterinarians:

1 ounce bottle,	\$1.00	12 ounce bottle,	\$10.00
2 ounce bottle,	2.00	20 ounce bottle,	15.00
6 ounce bottle,	5.00		

Price of syringe, \$5.00. With twenty ounces of the Compound we will include the syringe free. With twelve ounces of the Compound we will include the syringe for \$1.75 extra, if cash accompanies order.

The success of Mistur Muinidor Compound is perpetual. Read copy of letter received from Dr. H. C. Singer, M.D.C., Cowden, Ill.:

October 22nd, 1907.

United States Pharmacal Company, New Haven, Conn.
Gentlemen.—

Please send me six ounces of your Mistur Muinidor Compound. I have tried one ounce and it does just what you claim. Enclosed please find check for \$5.00 for six ounces. Please ship same immediately and oblige, I am,

Yours very respectfully,
(Signed) H. C. SINGER, M.D.C.

Every day fastens a new series of cures to its crowded record of achievements. Copy of letter received from The Yale Veterinary College Hospital, New Haven, Conn.:

November 4th, 1907.

United States Pharmacal Company,
New Haven, Conn.

Dear Sirs:—

We have used your Compound in the past three months, on a number of Spavins. We find the same works very satisfactorily, especially on incipient spavins which have never been fired or blistered, one being on a six-year-old valuable coach horse of which we herewith enclose you photograph. This animal the owner objected very much having, blemished from the cautery point or firing iron.

To be frank with you we did not have a great deal of faith in curing a spavin with a hyperdermic injection. This particular case was one which was on a young animal and the gelding was extremely lame. The enlargement was small. When the animal's hock was flexed and held for a few seconds the animal would hobble along on three legs, which proved that the spavin was a bad one and of the occult kind. Four drachms of your Compound was injected under the skin, which caused considerable swelling. Four days after the injection we took a curved needle and placed a small sized seaton through the swelling and over the spavin, which is shown in photograph. This allowed a slight amount of serum to ooze out. Same was washed with antiseptic and will say that there was no hair disturbed from the animal's hock, and same remained during the treatment.

The seaton was allowed to remain for ten days, same being dressed antiseptically, and the animal stood in a straight stall and not allowed to lay down. On removing the seaton the animal's hock was bathed twice daily with antiseptic solution and the animal allowed to remain ten

days longer in the straight stall tied so that it could not lay down.

Twenty days after the injection the animal was trotted out and handled the limb nearly sound, showing scarcely any blemish. It being a valuable animal we recommended a further rest of four weeks. Then the animal was shod with a shoe slightly elevated at the heels and rolled slightly on the inside of toe. The animal has been working sound for several weeks past. The owner can not speak too highly of the treatment. We shall have to endorse your compound as being a valuable remedy; still, we must emphasize that the seaton and rest aided your compound considerable in bringing about this cure.

Under ordinary circumstances we should have fired the horse and blistered him in place of injecting the compound. This would necessarily mark the horse's hock for life and would have been an eyesore to the owner. With the use of your compound we have overcome this, for at the present time the animal would pass a very rigid veterinary examination and in many cases would be passed as a sound animal.

The two small places which were left from the seaton have haired out and are not noticeable. We have used your compound on curbs, splints, enlarged tendons, sheath, Bur-sitis capped elbow, capped hock, etc., painted on once daily with brush, with very gratifying success.

Thanking you for the samples which you have furnished us with, we are,

Very respectfully yours,
THE YALE VETERINARY COLLEGE HOSPITAL,
New Haven, Conn.



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Side view six weeks after injection.



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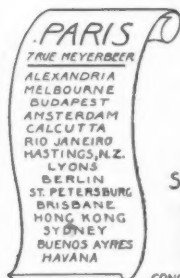
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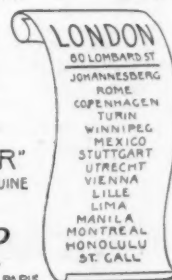
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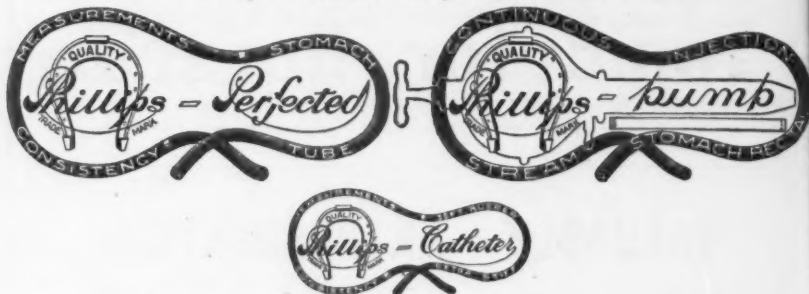
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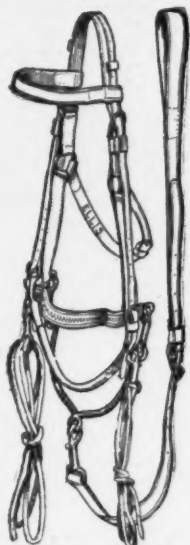
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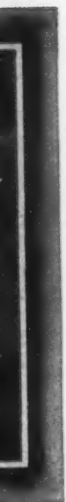
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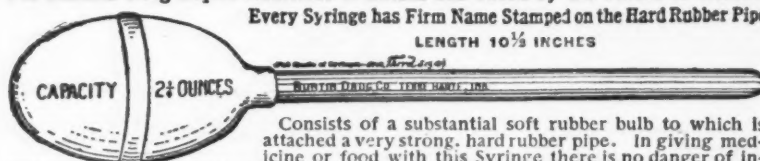
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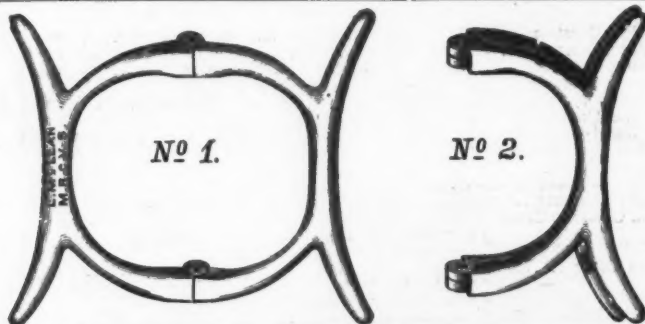
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Organized and Incorporated under the Laws of the State of Illinois, 1889.

Regular Session commences the first week in October in each year.

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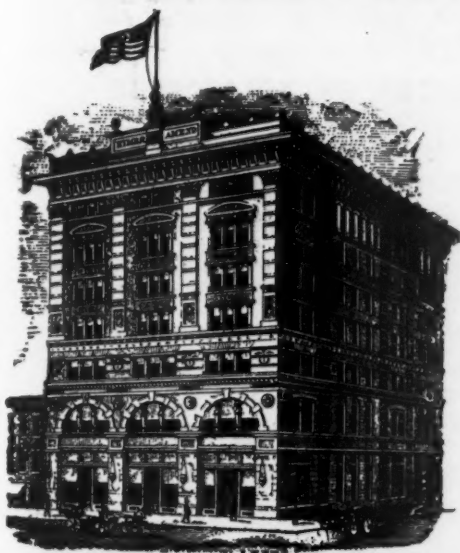
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Make a Specialty of all

Drugs, Extracts,
Tinctures, Chemicals,
etc., etc., used in
Veterinary practice..



E. & A.'s Veterinary
Glycerin Suppositories.

Sulfglycerole for skin
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ORAL: 1-2, 1, 2, 3, 4, 7, 8 and 12 drachms.

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"The Pioneer American Capsule House."

Manufacturers of Superior Filled and Empty Gelatine Capsules.

Capsulating Private Formulas a Specialty.

INTRAVENOUS THERAPY

To Veterinarians who have not adopted the **TALLIANINE INTRAVENOUS TREATMENT** for **PNEUMONIA, PURPURA HEMORRHAGICA** and other **SEPTIC CONDITIONS**, we will forward by express, securely packed charges to be paid by the Veterinarian),

**ONE DOZEN TUBES OF TALLIANINE
AND
ONE STANDARD No. 4 VETERINARY INTRAVENOUS
INJECTING SYRINGE, COMPLETE**

For TEN DOLLARS. Cash to accompany the order.

This offer to the profession is suggested by the fact that many Veterinarians remain unacquainted with **TALLIANINE** by not having means of making satisfactory injections.

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Air-Cushion Rubber horse-Shoe Pads

IDEALISM IN HORSE-SHOEING.
It follows closely nature's scheme in anatomy and physiology, and is therefore correct.



Many horses that are lame on any other pad or shoe will go sound on Air-Cushion Pads.
There is a reason. "Write us."

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Complete Literature with records of cases upon request

TALLIANINE

TRADE MARK REGISTERED.

Administered by intravenous injections through the jugular vein, and has been demonstrated to be the most rational and positive treatment for Pneumonia, Purpura, etc., and all cases due to a septic condition of the blood.

"TALLIANINE"

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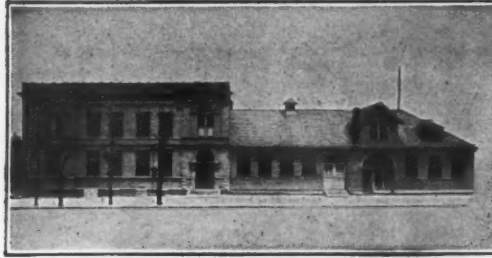
Case No. _____ Surgeon: Dr. William Mock Date: March 25th 1909
 Address: Easton, Pa.

RECORD.		TEMPERATURE		REMARKS.	
Date.	Time.	Temp.	Time.	Temp.	Time.
March 25	10	106.5	11	106.0	12
March 26	10	105.5	11	105.0	12
March 27	10	104.5	11	104.0	12
March 28	10	103.5	11	103.0	12
March 29	10	102.5	11	102.0	12
March 30	10	101.5	11	101.0	12
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INDIANA VETERINARY COLLEGE

Chartered by State of Indiana, December 24, 1892.

NEXT SESSION BEGINS SEPT. 15, 1908,
CLOSES APRIL 1, 1909.



Tuition for the three term course :

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Matriculation	\$ 5.00
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Total	\$85.00

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Matriculation	\$ 5.00
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Total	\$95.00

Total cost of the three terms \$265.00
Paid in advance \$235.00

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SIMPLICITY EQUINE OPERATING TABLE



This Table has movements necessary for all surgical operations and guaranteed indestructable.

Veterinary Table \$200
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Veterinary Specialty Manufacturing Co., Grand Rapids, Michigan

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A NEW STOMACH TUBE

For use in horses with ACUTE INDIGESTION; one that proves itself a winner in each case where a tube is needed. This tube as with all other instruments is claimed by the originators to be the best, and if demonstrations could be shown to all we are sure they would say it does the work. This tube is double throughout its length—ten feet—made of the best of soft rubber, it having two separate openings or one inlet, the other outlet. The outlet is large enough so that a half kernel of corn can come away easily. The tube is easily passed through the mouth with the use of a speculum.

Price \$15.00 sent C. O. D. to all parties.

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WORMS in DOGS

are quickly expelled by "TENALINE" A safe and efficient remedy. No after aperient necessary. Supplied in capsules of various sizes. Literature on application.

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SOLE PROPRIETORS,

WILLOWS, FRANCIS, BUTLER & THOMPSON, Ltd.

40, ALDERSGATE STREET, LONDON.

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\$ 5.00

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The Humane Equine Revolving Veterinary Operating Table is fast making its way across the Continent.

It can be inspected by prospective buyers in the following Veterinary Hospitals.

NEW YORK CITY. Dr. J. E. Ryder's Veterinary Hospital, 155 E. 24th St.

BROOKLYN, NEW YORK. Drs. McLean & McAuslin's Veterinary Hospital, 397 Carlton Avenue; Dr. Elisha Hanshaw's Veterinary Hospital, 125 Carlton Avenue; Dr. Wm. J. Finn's Veterinary Hospital, 285 Jay St.

NEW BRITAIN. Dr. George W. Crowley's Veterinary Hospital.

NEW HAVEN, CONN. Dr. F. G. Atwood's Veterinary Hospital.

PHILADELPHIA, PA. Dr. Herman H. Weinberg's Veterinary Hospital, 418 Diamond Street.

WASHINGTON, D. C. Dr. C. Barnwell Robinson's Veterinary Hospital, 222 C Street, Washington, D. C.

MONTGOMERY, ALABAMA. Dr. S. A. Saul's Veterinary Hospital, 109 N Lawrence Street.

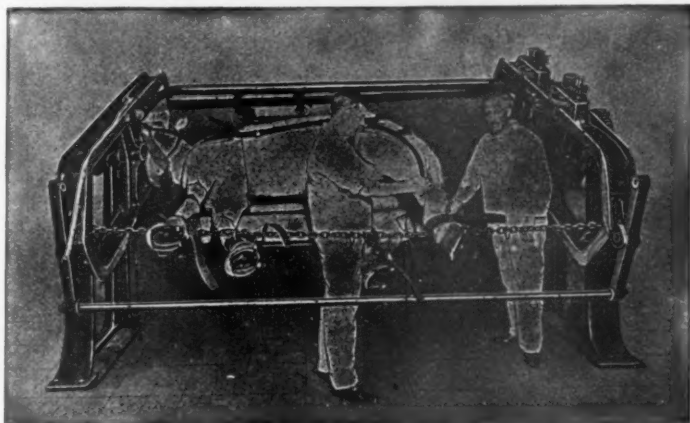
CHICAGO, ILLINOIS. Prof. M. H. McKillip's Veterinary Hospital, 1639 Wabash Avenue.

ST. LOUIS, MISSOURI. Dr. A. Darling's Veterinary Hospital, 3331 Pine St.

MEMPHIS, TENNESSEE. Dr. Chas. B. Banks, 287 Monroe Street.



ROARING OPERATION.



HORSE PLACED FOR SPAVIN OPERATION.

There are two extension leg and foot attachments, to which the feet can be fastened. This allows the surgeon to remove the chain and bar shown in this cut, and to approach any part of the patient without being hemmed in by machine and animal. One whole side can be removed and this makes a single sided table, having all the advantages of free accessibility to head of animal, by placing horse on table head toward back end.

We have for sale several second-hand flat tables which have been taken in exchange.

CORRESPONDENCE SOLICITED.

THE BRADWOOD MFG. CO.,

125 Water Street,

NEW HAVEN, CONN.

Valuable Syringe Free!

This valuable aseptic syringe free with an order for twenty ounces of Mistur Muinidor Compound. Prices of this Compound to veterinarians:

1 ounce bottle,	\$1.00	12 ounce bottle,	\$10.00
2 ounce bottle,	2.00	20 ounce bottle,	15.00
6 ounce bottle,	5.00		

Price of syringe, \$5.00. With twenty ounces of the Compound we will include the syringe free. With twelve ounces of the Compound we will include the syringe for \$1.75 extra, if cash accompanies order.

The success of Mistur Muinidor Compound is perpetual. Read copy of letter received from Dr. H. C. Singer, M.D.C., Cowden, Ill.:

October 22nd, 1907.

United States Pharmacal Company, New Haven, Conn.
Gentlemen.—

Please send me six ounces of your Mistur Muinidor Compound. I have tried one ounce and it does just what you claim. Enclosed please find check for \$5.00 for six ounces. Please ship same immediately and oblige, I am,

Yours very respectfully,

(Signed)

H. C. SINGER, M.D.C.

Every day fastens a new series of cures to its crowded record of achievements. Copy of letter received from The Yale Veterinary College Hospital, New Haven, Conn.:

November 4th, 1907.

United States Pharmacal Company,
New Haven, Conn.

Dear Sirs:—

We have used your Compound in the past three months, on a number of Spavins. We find the same works very satisfactorily, especially on incipient spavins which have never been fired or blistered, one being on a six-year-old valuable coach horse of which we herewith enclose you photograph. This animal the owner objected very much having blemished from the cautery point or firing iron.

To be frank with you, we did not have a great deal of faith in curing a spavin with a hyperdermic injection. This particular case was one which was on a young animal and the gelding was extremely lame. The enlargement was small. When the animal's hock was flexed and held for a few seconds the animal would hobble along on three legs, which proved that the spavin was a bad one and of the occult kind. Four drachms of your Compound was injected under the skin, which caused considerable swelling. Four days after the injection we took a curved needle and placed a small sized seaton through the swelling and over the spavin, which is shown in photograph. This allowed a slight amount of serum to ooze out. Same was washed with antiseptic and will say that there was no hair disturbed from the animal's hock, and same remained during the treatment.

The seaton was allowed to remain for ten days, same being dressed antiseptically, and the animal stood in a straight stall and not allowed to lay down. On removing the seaton the animal's hock was bathed twice daily with antiseptic solution and the animal allowed to remain ten



days longer in the straight stall tied so that it could not lay down.

Twenty days after the injection the animal was trotted out and handled the limb nearly sound, showing scarcely any blemish. It being a valuable animal we recommended a further rest of four weeks. Then the animal was shod with a shoe slightly elevated at the heels and rolled slightly on the inside of toe. The animal has been working sound for several weeks past. The owner can not speak too highly of the treatment. We shall have to endorse your compound as being a valuable remedy; still, we must emphasize that the seaton and rest aided your compound considerable in bringing about this cure.

Under ordinary circumstances we should have fired the horse and blistered him in place of injecting the compound. This would necessarily mark the horse's hock for life and would have been an eyesore to the owner. With the use of your compound we have overcome this, for at the present time the animal would pass a very rigid veterinary examination and in many cases would be passed as a sound animal.

The two small places which were left from the seaton have haired out and are not noticeable. We have used your compound on curbs, splints, enlarged tendons, sheath, Bursitis capped elbow, capped hock, etc., painted on once daily with brush, with very gratifying success.

Thanking you for the samples which you have furnished us with, we are,

Very respectfully yours,

THE YALE VETERINARY COLLEGE HOSPITAL,
New Haven, Conn.

ON valuable animals which owners object to have branded with the cautery or firing iron, and on those desperate cases pronounced incurable, on young and on the old, for incipient and chronic ailments, Mistur Muinidor Compound scores in a lasting triumph. There are no curative properties in a red hot iron. Firing never did and never will repair an injury. To fire a horse causes a blemish and an injury for life. One injury will not *medicate another injury*. Mistur Muinidor Compound is the latest and most powerful absorbent discovered. When injected under the skin over the diseased part causes rapid absorption and speedy relief to deep seated spavins. For splints, curbs, large tendons, ring-bones, side-bones, large glands, shoe-boils, etc., it may be applied with a brush, but for such an ailment as a spavin we recommend injecting same with a hyperdermic syringe, using from two to four drams, care being taken not to puncture a vein or to open the hock joint.

When inserting the needle we believe in inserting the same from the lower part of the spavin upward under the skin, as shown in accompanying photograph. The remarkable fact of not blemishing an animal, to many owners, is appreciated beyond question. It is a feather in the veterinarian's hat when he can cure a spavin with an operation performed with a hyperdermic syringe, being performed by a competent and qualified veterinarian, same being performed under antiseptic precautions, that is, the needle should be clean and the horse's leg should be washed with antiseptics before making an injection. If a seaton is used the same antiseptic precautions should be used as in all operations. There are on record many cases of infection blood poison and even lock jaw following

the use of the firing iron or cautery. While our compound is an antiseptic itself which no germ can live in, still we recommend using all precautions when injecting same hyperdermically, as many germs contained on a horse's skin often are the surgeon's enemies. With the skillful technic of an educated veterinarian we are confident that same will prove a success in the majority of cases. It has

met, in the hands of many, a great success in punctured nail wounds by placing a few drops in the hole after same has been cleansed with antiseptics, thus preventing the extreme inflammation which often follows after punctures, es-



Four days after injection.



Side view six weeks after injection.



Back view six weeks after injection.

pecially those cases which the surgeon desires to treat for a few days before operating. If it be a puncture with an open navicular joint we would advise the latest surgical interference, and not depend on any medication without the operation.

If the case is where the animal cannot be operated on we believe the use of the compound will aid in preserving matters until the necessary operation can be performed. We believe the veterinarian's equipment is not complete without our latest syringe and a supply of this compound. We are necessarily reducing the price and giving away a valuable syringe, which is an aseptic instrument that comes into daily use by all busy veterinarians. This syringe is made with the latest all metal plunger, which allows the same to be boiled for a period of 15 or 20 minutes, thus allowing the syringe to be used for local anaesthetic and for the various hyperdermic tablets. It is the best that can be produced and in ordering same in large quantities we have decided to give the same free with 20-ounces of compound.

**UNITED STATES PHARMACAL COMPANY,
NEW HAVEN, CONN.**

PETROGEN—WYETH

A non-irritating, highly penetrating and soluble medium for the administration of medicaments which ordinarily prove difficult of use because of their irritating properties.

Petrogen is particularly well adapted for veterinary practice for the administration of iodine.

Iodine-Petrogen will cause no irritation or blistering, nor will its continued application result in a falling out of the hair, or cause any permanent staining.

Iodine-Petrogen is indicated in all forms of sprains, stiff joints, shoulder lameness, swellings, bone enlargements, and all conditions where a stimulating action on the glands and blood-vessels is required.

Iodine-Petrogen may be employed freely and indefinitely without producing the tendency to blister, which so often precludes entirely the use of the tincture of iodine.

LITERATURE AND SAMPLES OF IODINE-PETROGEN, OR OTHER PETROGEN COMBINATIONS, WILL BE SUPPLIED ON REQUEST

JOHN WYETH & BROTHER, Inc.

PHARMACEUTICAL CHEMISTS,

PHILADELPHIA

Veterinary Specialties

VETRINOL

VETERINARY UNGUENTINE

An ideal antiseptic healing ointment for Burns, Sores, Wounds and Inflammatory Skin Diseases.

ZEMACOL

ECZEMA COLLOID

A soothing absorbable healing emollient, for the treatment of Eczema and Mange in all domestic Animals.

VETRINOL

DUSTING POWDER

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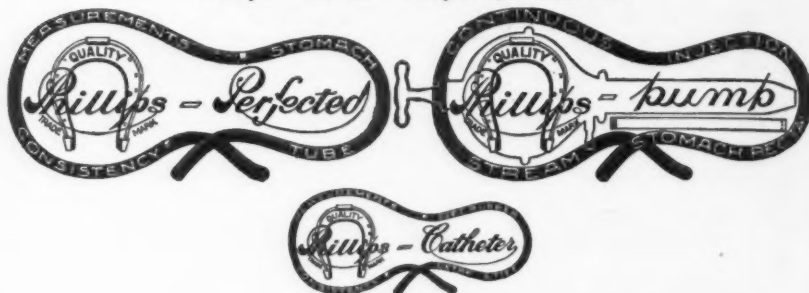
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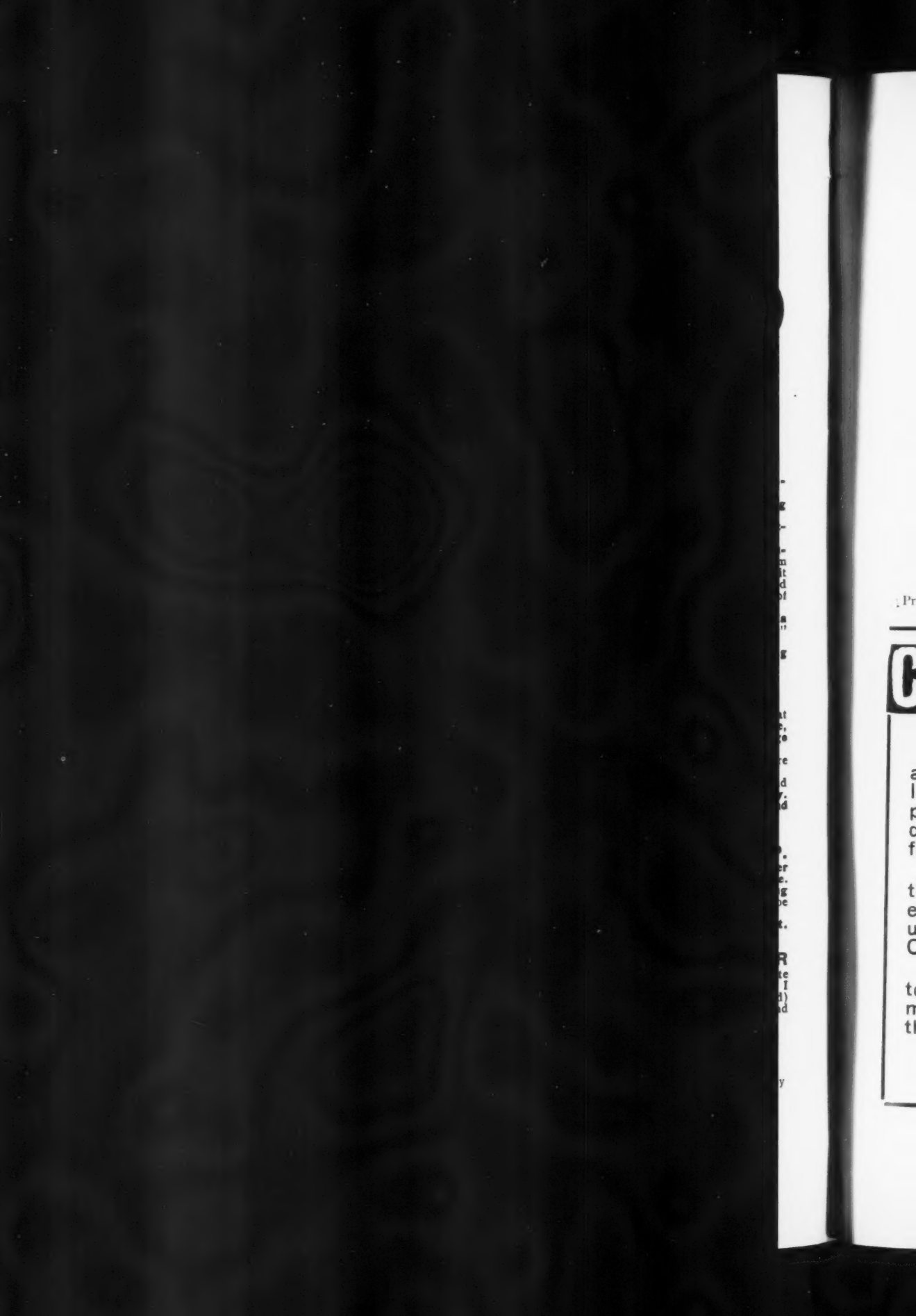
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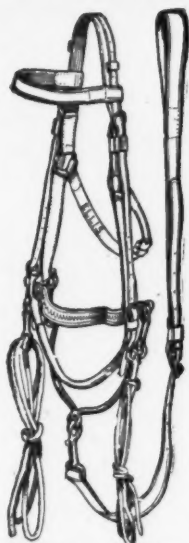


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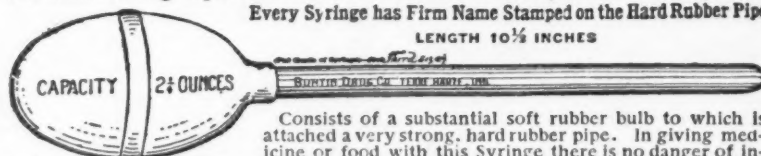
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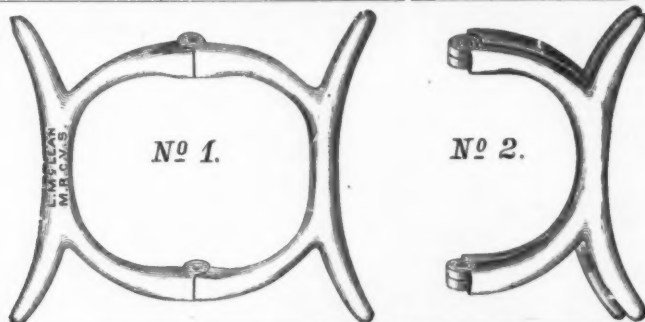
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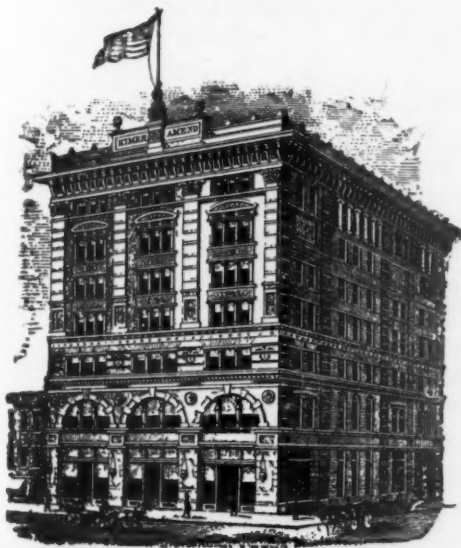
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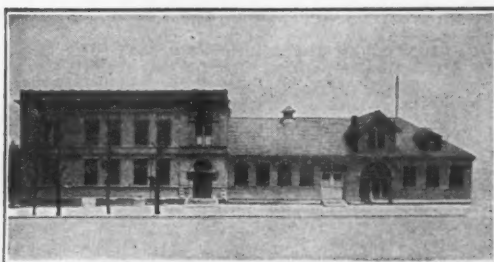
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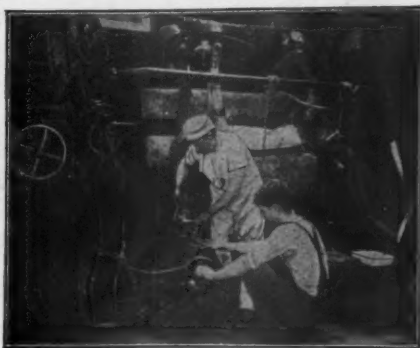
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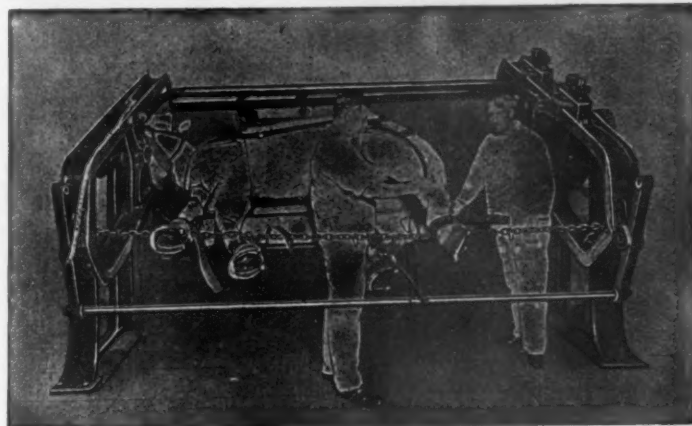
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October 22nd, 1907.

United States Pharmacal Company, New Haven, Conn.
Gentlemen.—

Please send me six ounces of your Mistur Muinidor Compound. I have tried one ounce and it does just what you claim. Enclosed please find check for \$5.00 for six ounces. Please ship same immediately and oblige, I am,

Yours very respectfully,

(Signed) H. C. SINGER, M.D.C.

Every day fastens a new series of cures to its crowded record of achievements. Copy of letter received from The Yale Veterinary College Hospital, New Haven, Conn.:

November 4th, 1907.

United States Pharmacal Company,
New Haven, Conn.

Dear Sirs:—

We have used your Compound in the past three months, on a number of Spavins. We find the same works very satisfactorily, especially on incipient spavins which have never been fired or blistered, one being on a six-year-old valuable coach horse of which we herewith enclose you photograph. This animal the owner objected very much having blemished from the cautery point or firing iron.

To be frank with you we did not have a great deal of faith in curing a spavin with a hyperdermic injection. This particular case was one which was on a young animal and the gelding was extremely lame. The enlargement was small. When the animal's hock was flexed and held for a few seconds the animal would hobble along on three legs, which proved that the spavin was a bad one and of the occult kind. Four draughts of your Compound was injected under the skin, which caused considerable swelling. Four days after the injection we took a curved needle and placed a small sized seaton through the swelling and over the spavin, which is shown in photograph. This allowed a slight amount of serum to ooze out. Same was washed with antiseptic and will say that there was no hair disturbed from the animal's hock, and same remained during the treatment.

The seaton was allowed to remain for ten days, same being dressed antiseptically, and the animal stood in a straight stall and not allowed to lay down. On removing the seaton the animal's hock was bathed twice daily with antiseptic solution and the animal allowed to remain ten



days longer in the straight stall tied so that it could not lay down.

Twenty days after the injection the animal was trotted out and handled the limb nearly sound, showing scarcely any blemish. It being a valuable animal we recommended a further rest of four weeks. Then the animal was shod with a shoe slightly elevated at the heels and rolled slightly on the inside of toe. The animal has been working sound for several weeks past. The owner can not speak too highly of the treatment. We shall have to endorse your compound as being a valuable remedy; still, we must emphasize that the seaton and rest aided your compound considerable in bringing about this cure.

Under ordinary circumstances we should have fired the horse and blistered him in place of injecting the compound. This would necessarily mark the horse's hock for life and would have been an eyesore to the owner. With the use of your compound we have overcome this, for at the present time the animal would pass a very rigid veterinary examination and in many cases would be passed as a sound animal.

The two small places which were left from the seaton have haired out and are not noticeable. We have used your compound on curbs, splints, enlarged tendons, sheath, Bur-sitis capped elbow, capped hock, etc., painted on once daily with brush, with very gratifying success.

Thanking you for the samples which you have furnished us with, we are,

Very respectfully yours,

THE YALE VETERINARY COLLEGE HOSPITAL,
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ON valuable animals which owners object to have branded with the cautery or firing iron, and on those desperate cases pronounced incurable, on young and on the old, for incipient and chronic ailments, Mistur Muinidor Compound scores in a lasting triumph. There are no curative properties in a red hot iron. Firing never did and never will repair an injury. To fire a horse causes a blemish and an injury for life. One injury will not *medicate another injury*. Mistur Muinidor Compound is the latest and most powerful absorbent discovered. When injected under the skin over the diseased part causes rapid absorption and speedy relief to deep seated spavins. For splints, curbs, large tendons, ring-bones, side-bones, large glands, shoe-boils, etc., it may be applied with a brush, but for such an ailment as a spavin we recommend injecting same with a hyperdermic syringe, using from two to four drams, care being taken not to puncture a vein or to open the hock joint.

When inserting the needle we believe in inserting the same from the lower part of the spavin upward under the skin, as shown in accompanying photograph. The remarkable fact of not blemishing an animal, to many owners, is appreciated beyond question. It is a feather in the veterinarian's hat when he can cure a spavin with an operation performed with a hyperdermic syringe, being performed under antiseptic precautions, that is, the needle should be clean and the horse's leg should be washed with antiseptics before making an injection. If a seaton is used the same antiseptic precautions should be used as in all operations. There are on record many cases of infection blood poison and even lock jaw following

the use of the firing iron or cautery. While our compound is an antiseptic itself which no germ can live in, still we recommend using all precautions when injecting same hyperdermically, as many germs contained on a horse's skin often are the surgeon's enemies. With the skillful technic of an educated veterinarian we are confident that same will prove a success in the majority of cases. It has met, in the hands of many, a great success in punctured nail wounds by placing a few drops in the hole after same has been cleansed with antiseptics, thus preventing the extreme inflammation which often follows after punctures, es-



Four days after
injection.



Side view six weeks after injection.

pecially those cases which the surgeon desires to treat for a few days before operating. If it be a puncture with an open navicular joint we would advise the latest surgical interference, and not depend on any medication without the operation.

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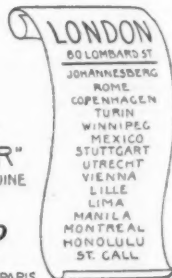
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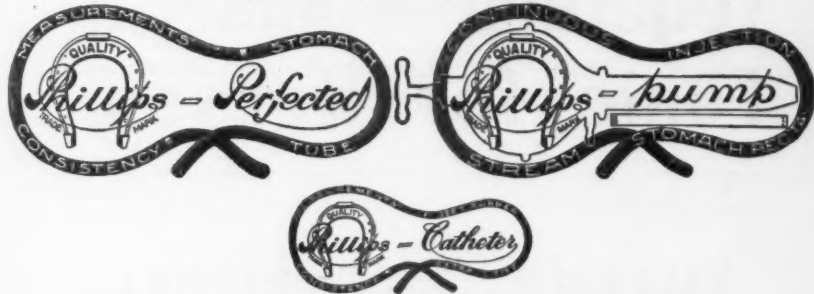
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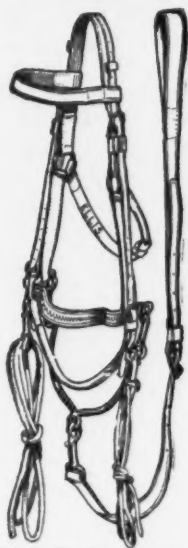
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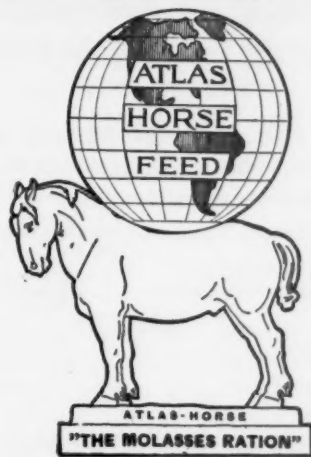
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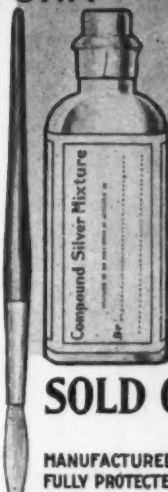
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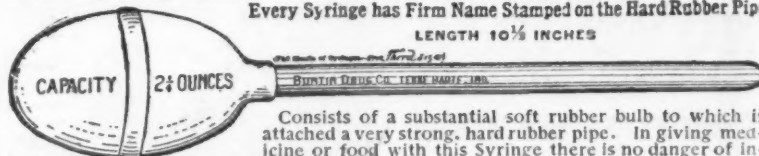
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	{ Barium Chlor.....	7 grs. }	
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	{ Digitaline, Pure.....	1-10 gr. }	
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104	Coniline Hydrobromate.....	1-2 gr.	43
128	Coniline Hydrobromate.....	1 gr.	60
105	Digitaline, Pure.....	1-8 gr.	20
129	Digitaline, Pure.....	1-4 gr.	35
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157	Ergotine.....	4 grs.	27
113	Eserine Salicylate.....	1-4 gr.	50
133	Eserine Salicylate.....	1-2 gr.	75
134	Eserine Salicylate.....	1 gr.	1 25
135	Eserine Salicylate.....	1 1/2 grs.	1 60
106	Eserine Compound.....		1 00
	{ Eserine Salicylate.....	1-4 gr. }	
	{ Pilocarpine Muriate.....	1-2 gr. }	
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133	Eserine and Pilocarpine.....		1 50
	{ Eserine.....	1-2 gr. }	
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	{ Eserine Salicylate.....	1 gr. }	
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108	Morphine Sulphate.....	1 gr.	25
136	Morphine Sulphate.....	1 1/2 grs.	35
137	Morphine Sulphate.....	2 gr.	40
138	Morphine Sulphate.....	2 1/2 grs.	50
135	Morphine Sulphate.....	3 grs.	60
109	Morphine and Atropine.....		45
	{ Morphine Sulph.....	1 1/2 grs. }	
	{ Atropine Sulph.....	1/2 gr. }	
139	Morphine and Atropine.....		45
	{ Morphine Sulph.....	1 1/2 grs. }	
	{ Atropine Sulph.....	1/2 gr. }	
140	Morphine and Atropine.....		55
	{ Morphine Sulph.....	2 grs. }	
	{ Atropine Sulph.....	1-4 gr. }	
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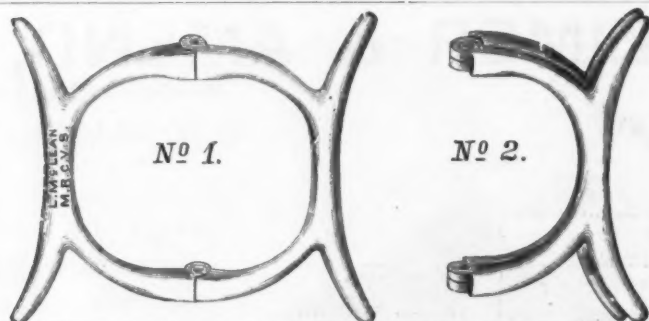
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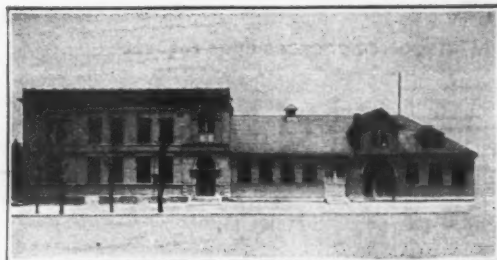
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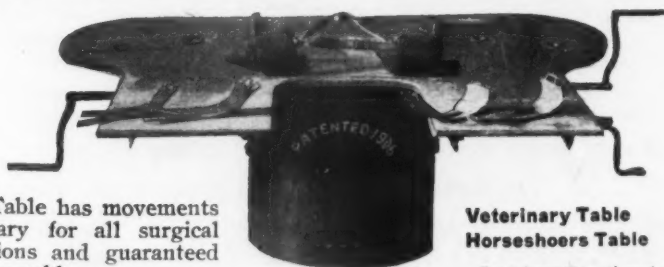
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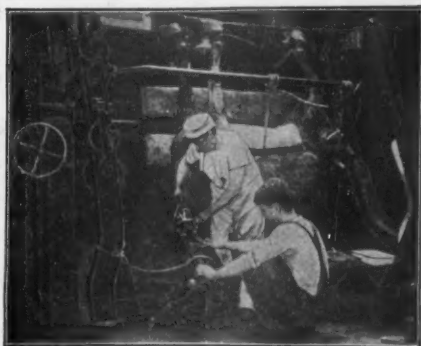
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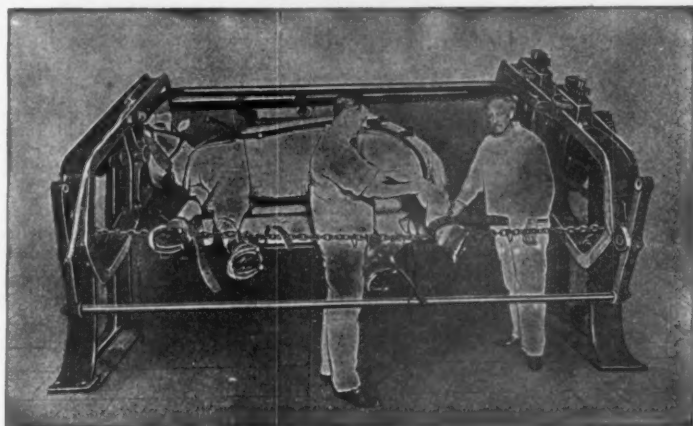
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HORSE PLACED FOR SPAVIN OPERATION.

There are two extension leg and foot attachments, to which the feet can be fastened. This allows the surgeon to remove the chain and bar shown in this cut, and to approach any part of the patient without being hemmed in by machine and animal. One whole side can be removed and this makes a single sided table, having all the advantages of free accessibility to head of animal, by placing horse on table head toward back end.

We have for sale several second-hand flat tables which have been taken in exchange.

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THE BRADWOOD MFG. CO.,
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Valuable Syringe Free!

This valuable aseptic syringe free with an order for twenty ounces of Mistur Muinidor Compound. Prices of this Compound to veterinarians:

1 ounce bottle,	\$1.00	12 ounce bottle,	\$10.00
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6 ounce bottle,	5.00		

Price of syringe, \$5.00. With twenty ounces of the Compound we will include the syringe free. With twelve ounces of the Compound we will include the syringe for \$1.75 extra, if cash accompanies order.

The success of Mistur Muinidor Compound is perpetual. Read copy of letter received from Dr. H. C. Singer, M.D.C., Cowden, Ill.:

October 22nd, 1907.

United States Pharmacal Company, New Haven, Conn.
Gentlemen.—

Please send me six ounces of your Mistur Muinidor Compound. I have tried one ounce and it does just what you claim. Enclosed please find check for \$5.00 for six ounces. Please ship same immediately and oblige, I am,

Yours very respectfully,

(Signed)

H. C. SINGER, M.D.C.

Every day fastens a new series of cures to its crowded record of achievements. Copy of letter received from The Yale Veterinary College Hospital, New Haven, Conn.:

November 4th, 1907.

United States Pharmacal Company,
New Haven, Conn.

Dear Sirs:—

We have used your Compound in the past three months, on a number of Spavins. We find the same works very satisfactorily, especially on incipient spavins which have never been fired or blistered, one being on a six-year-old valuable coach horse of which we herewith enclose you photograph. This animal the owner objected very much having blemished from the cautery point or firing iron.

To be frank with you we did not have a great deal of faith in curing a spavin with a hyperdermic injection. This particular case was one which was on a young animal and the gelding was extremely lame. The enlargement was small. When the animal's hock was flexed and held for a few seconds the animal would hobble along on three legs, which proved that the spavin was a bad one and of the occult kind. Four drachms of your Compound was injected under the skin, which caused considerable swelling. Four days after the injection we took a curved needle and placed a small sized seaton through the swelling and over the spavin, which is shown in photograph. This allowed a slight amount of serum to ooze out. Same was washed with antiseptic and will say that there was no hair disturbed from the animal's hock, and same remained during the treatment.

The seaton was allowed to remain for ten days, same being dressed antiseptically, and the animal stood in a straight stall and not allowed to lay down. On removing the seaton the animal's hock was bathed twice daily with antiseptic solution and the animal allowed to remain ten



days longer in the straight stall tied so that it could not lay down.

Twenty days after the injection the animal was trotted out and handled the limb nearly sound, showing scarcely any blemish. It being a valuable animal we recommended a further rest of four weeks. Then the animal was shod with a shoe slightly elevated at the heels and rolled slightly on the inside of toe. The animal has been working sound for several weeks past. The owner can not speak too highly of the treatment. We shall have to endorse your compound as being a valuable remedy; still, we must emphasize that the seaton and rest aided your compound considerable in bringing about this cure.

Under ordinary circumstances we should have fired the horse and blistered him in place of injecting the compound. This would necessarily mark the horse's hock for life and would have been an eyesore to the owner. With the use of your compound we have overcome this, for at the present time the animal would pass a very rigid veterinary examination and in many cases would be passed as a sound animal.

The two small places which were left from the seaton have haired out and are not noticeable. We have used your compound on curbs, splints, enlarged tendons, sheath, Bur-sitis capped elbow, capped hock, etc., painted on once daily with brush, with very gratifying success.

Thanking you for the samples which you have furnished us with, we are,

Very respectfully yours,

THE YALE VETERINARY COLLEGE HOSPITAL,
New Haven, Conn.

ON valuable animals which owners object to have branded with the cautery or firing iron, and on those desperate cases pronounced incurable, on young and on the old, for incipient and chronic ailments, Mistur Muinidor Compound scores in a lasting triumph. There are no curative properties in a red hot iron. Firing never did and never will repair an injury. To fire a horse causes a blemish and an injury for life. One injury will not medicate another injury. Mistur Muinidor Compound is the latest and most powerful absorbent discovered. When injected under the skin over the diseased part causes rapid absorption and speedy relief to deep seated spavins. For splints, curbs, large tendons, ring-bones, side-bones, large glands, shoe-boils, etc., it may be applied with a brush, but for such an ailment as a spavin we recommend injecting, same with a hyperdermic syringe, using from two to four drams, care being taken not to puncture a vein or to open the hock joint.

When inserting the needle we believe in inserting the same from the lower part of the spavin upward under the skin, as shown in accompanying photograph. The remarkable fact of not blemishing an animal, to many owners, is appreciated beyond question. It is a feather in the veterinarian's hat when he can cure a spavin with an operation performed with a hyperdermic syringe, being performed by a competent and qualified veterinarian, same being performed under antiseptic precautions, that is, the needle should be clean and the horse's leg should be washed with antiseptics before making an injection. If a seaton is used the same antiseptic precautions should be used as in all operations. There are on record many cases of infection blood poison and even lock jaw following the use of the firing iron or cautery.

While our compound is an antiseptic itself which no germ can live in, still we recommend using all precautions when injecting same hyperdermically, as many germs contained on a horse's skin often are the surgeon's enemies. With the skillful technic of an educated veterinarian we are confident that same will prove a success in the majority of cases. It has met, in the hands of many, a great success in punctured nail wounds by placing a few drops in the hole after same has been cleansed with antiseptics, thus preventing the extreme inflammation which often follows after punctures, es-



Four days after injection.



Side view six weeks after injection.



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